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HIGHTIMES

November 502

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HIGH TIMES NOVEMBER



For apartment dwellers living in close proximity to nosy neighbors, growing pot at home requires a very particular set of skills.

The Urban Growroom—page 68

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Grannies getting high!

My First Time

Every toker remembers their first time smoking pot: It's a rite of passage and usually provides a story that's retold through the years (often while smoking pot). However, not every toker got high for the very first time while being filmed. Fortunately, the good people at *cut.com* came up with the concept of

gathering groups of people ready to try pot and filming the event for a series of mesmerizing videos.

Cut kicked things off with "Grandmas Smoke Weed for the First Time" a few years back, and the video quickly went viral. Since then, they've filmed ex-cops, parents and kids, blind dates and, most recently, grandpas all taking their inaugural toke. It makes for fascinating, funny and often poignant viewing. Revisit all of *Cut's* "first time" videos at hightimes.com/firsttime.

We Want To Hear From You!

Tweet your best high observations and comments our way @HIGH_TIMES_Mag for a chance to be featured on this page! And be sure to follow us on Facebook (Facebook/HIGHTIMES-Mag) and Instagram (@hightimesmagazine) for all the latest news as it's happening!

@ArmelConsult: @HIGH_TIMES_Mag All humans should be able to consider cannabis for any mental/physical ailments. Cannabis prohibition is dead. We don't believe it anymore.

@Canna_Wine: @HIGH_TIMES_Mag We love the idea of weed & wine together!

@JustinJamesArse: @HIGH_TIMES_Mag According to supply and demand prices should come waaaaaay down then here in Cali.

@AJ18018: @HIGH_TIMES_Mag Um, well damn we sure use some good Cali weed out in PA. Hook us up!

@JungleStrikeGuy: Glad to see @HIGH_TIMES_Mag making inroads to Canada, I assume first post-legalization cup here will be pretty big #cannabis

@NeilSamra1: @HIGH_TIMES_Mag I suffer from PTSD and Medical Marijuana saved my life! It is so important that people that suffer from this are able to medicate with ganja.

@megdex: My @HIGH_TIMES_Mag horoscope described me better than my own mother.

@NewApproachMO: @HIGH_TIMES_Mag Our vets deserve better. They need safe & legal access to medical cannabis. We owe them that as a nation.

@Tim_Dobbs: @HIGH_TIMES_Mag The War on Drugs must end now it is no more than a cash machine to keep a corrupt police force in power.

@tx_canna: @HIGH_TIMES_Mag Who buys weed from Mexico nowadays?

On Instagram

Behold nature's bounty. This shot of several enticing 'shrooms resting upon nugs of gorgeous ganja got us thinking about this year's Global Drug Survey, which lists 'shrooms and pot as the two safest recreational drugs on earth. Their combined effects make for a mind-expanding journey that has the power to raise your consciousness.

To learn more about how magic mushrooms are entering the mainstream, check out our story on psychedelics on page 59. And be sure to follow @vortexfarmacy for more beautiful bud shots.



Smoking Poll

Concentrates make up the fastest-growing sector of the cannabis industry, with new innovations in extraction techniques and consumption cropping up constantly. In fact, the marijuana-extract game evolves so quickly that it can be hard to keep up. Fortunately, this month we're running Part II of our "Concentrated Cannabis" series, "The Tao of Dab" (page 44). This piece explores the science behind the cannabis compounds found in concentrates, as well as all the latest tech.

With so many options for extracts, we wanted to ask our readers what type of concentrate is their favorite.

In this poll, the tried-and-true concentrates came out on top. Shatter was the clear winner, with 28 percent of the vote, and good old wax came in second with 20 percent. Sugar took third place with 15 percent of the vote, while budder and sauce tied for fourth with 12 percent each. Pull-and-snap came in sixth, garnering 8 percent of the vote, while sap finished last, with just 4 percent of reader support. **Take our latest poll online!**

Which Type of Concentrate is Your Favorite?

Wax	20%
Budder	12%
Sugar	15%
Sauce	12%
Sap	4%
Shatter	28%
Pull and Snap	8%



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Tripping Forward

The famed psychonaut Terence McKenna once said: “Psychedelics are illegal not because a loving government is concerned that you may jump out of a third-story window. Psychedelics are illegal because they dissolve opinion structures and culturally laid-down models of behavior and information processing. They open you up to the possibility that everything you know is wrong.”

The world is having a pretty tough time of it these days. Everything we know is under siege: Battles are being waged over health care, refugees, civil rights—and the abominable War on Drugs grinds on. The endless news cycle at home and abroad brings a fresh wave of bad tidings every day. Now more than ever, those seeking higher consciousness and healing are turning to the ancient wisdom of psychedelics. In “Transformational Tripping,” we investigate how people are using plant-based entheogens, as well as synthesized drugs like LSD and MDMA, to find peace, boost creativity, and treat depression and other disorders. We also visit a pair of chefs in Amsterdam who are embracing magic mushrooms and other trippy components in their cuisine to create a truly far-out fine-dining experience.

Also in this issue, *HT* contributor Sean Black continues to examine the fascinating world of marijuana extracts in his “Concentrated Cannabis, Part II: The Tao of Dab.” Investigative journalist Dave Lindorff reveals the Pentagon’s outrageous abuse of US soldiers serving in war zones in “Drugged: The Military’s Pill Problem.” Senior cultivation editor Danny Danko offers the ultimate grow tips for city dwellers in “The Urban Growroom.” And in this month’s High Times Interview, we catch up with best-selling novelist (and proud pothead) Lee Child, author of the enormously popular Jack Reacher series, for a conversation about cannabis and creativity.

Cannabis is a healing plant. Psychedelics, when used responsibly and respectfully, also possess the power to heal. Open yourself up to the possibility that everything you know is wrong. The world would be a more beautiful place if we could all free ourselves from our dangerous and damaging preconceptions.

Consciously yours,

Mary Jane Gibson
Culture Editor

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HIGH TIMES November 2017 No. 502 (ISSN #0362-630X), published monthly by Trans-High Corporation, 250 West 57th Street, Suite 920, New York, NY 10107 • HIGH TIMES and Trans-High Corporation do not recommend, approve or endorse the products and/or services offered by companies advertising in the magazine or website. Nor do HIGH TIMES and Trans-High Corporation evaluate the advertiser's claims in any way. You should use your own judgment and evaluate products and services carefully before deciding to purchase. • Mail subscriptions (payable in US funds) and changes of address (please include most recent mailing label) to PO Box 422560 Palm Coast, FL 32142-2560 • Offices at 250 West 57th Street, New York, NY 10107 • Periodical postage paid at New York, NY, and at additional mailing offices • Manuscripts must be accompanied by a self-addressed stamped envelope • All contributions will be carefully considered, but the publishers and editors assume no responsibility for loss or injury to unsolicited material • Copyright © 2013 by Trans-High Corporation. Nothing in this publication may be reproduced in any manner, either in whole or in part, without specific written permission of the publisher. All rights reserved. "HIGH TIMES," "CANNABIS CUP," "MEDICAL CANNABIS CUP," "MISS HIGH TIMES," "PIX OF THE CROP," "POTCAST" and "BONGHITTERS" are trademarks and registered trademarks of Trans-High Corporation. All advertising and advertised products void where prohibited. POSTMASTER: Please send address changes to HIGH TIMES, PO Box 422560 Palm Coast, FL 32142-2560



@BigMike

Legalize It

In 2006, I started getting lower back pain. My doctor recommended chiropractic care. It helped somewhat, but then I had a car accident. After that, other conditions started to rear their ugly head. Fast-forward to 2017: I have been diagnosed with fibromyalgia, spinal stenosis, osteoarthritis, degenerative discs, irritable bladder and an anxiety disorder—all at 37 years old.

Unfortunately, in my state, my doctor cannot prescribe marijuana: North Carolina says “Hell, no!” to the thing that would help me most. I figure my state legislators have never felt pain worse than a hangnail—otherwise, marijuana would have been made legal long ago.

Until it is, I’ll keep my *High Times* at hand and my stash undercover. I keep praying one day I won’t have to.

*J. No Name
North Carolina*

Smokers Beware

In Logan County, Colorado (a large county in northeast CO that has passed a piece of legislation banning the commercial sale of cannabis), I’m beginning to see a lot of subpar product among the younger population. The problem stems from where the cannabis is grown and the chemicals that are used in its production. To keep things cheap and to maximize profits, these backdoor bulk growers are using irrigated cornfields to hide their crop. While this isn’t news to anyone, I would like to point out that some of the fertilizers, insecticides and herbicides used are deadly when not used correctly. The most efficient and effective application of these fertilizers is to spray them on from above. Because washing your buds is just a stupid idea, the chemicals that have not been absorbed crystallize and remain on the flower after trimming.

The best way to stop this practice is to reduce the demand. Stop smoking Farmer Bob’s pot and pay the extra money for high-quality herb. Thank you for reading my rant.

*F.G.
Colorado*

Where’s the Dank?

I can’t be the only one who’s noticed this. I’ve visited only some of the shops on both sides of the Cascades in Washington State, but since recreational pot passed, the available quality has been severely lacking. Much of it tastes the same, with



“I figure my state legislators have never felt pain worse than a hangnail—otherwise, marijuana would have been made legal long ago.”

little to none of the flavor I knew and came to expect back in the crazy old black-market days.

I recall 25 years ago regularly finding notably higher potency and taste with broader diversity than anything commonly available in the pot shops today. It’s strictly upper-mids at best.

Sure, the extracts have it all. But I miss the old connoisseur quality that is all but impossible to find if you can’t grow it yourself.

*Steve
Washington*

Don’t Panic!

For those of you just starting to use marijuana to treat anxiety problems, too much can sometimes trigger a panic attack. So how does marijuana help? In moderate doses. I can consume or smoke a fair amount throughout the day without a problem. It’s when taking large amounts or large doses of high-potency concentrate at once that you may end up on what I call the “panic-coaster.” CBD is known to help quite a bit with anxiety, but some still want to enjoy the psychoactive effects of THC. So my advice is to use *indicas* or *indica*-dominant hybrids.

Sativas sometimes cause your brain to be a little more overactive than you’d like,

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when a nice, mellow body high may be what you really need. If you’re using devices like a dab rig or a bong, start off small. A simple rule to help prevent cannabis-induced panic attacks from happening is to take moderate puffs and wait. Listen to your body.

The most potent stuff isn’t always the best, either. I say this because even a small dose can go a very long way, depending on your tolerance and cannabis experience.

*Mike L.
Ontario*

Two for One

I really enjoyed your concept of having a celebrity interview another celeb in the October issue (Johnny Depp interviewing Doug Stanhope). It was a nice touch and really made the story stand out. It was almost like having two interviews in one. I hope to see more of this in the future.

*Tim
Burlington, VT*

Leave Heroin Alone!

When NORML et al. warn about dangerous, addictive drugs (vilifying heroin) to curb their use (“Just Say No,” kids), rather than discuss living safely with the drugs people demand, they reinforce Kevin Sabet’s prohibition frame, perpetuate the addiction myth (debunked by Dr. Carl Hart), misdiagnose the problem, and undermine drug-policy reform and solution-focused harm-reduction techniques that work—unlike their ineffective and condescending, heroin-is-the-boogeyman-and-smoking-weed-is-the-answer, “Just Say No” strategy that hasn’t prevented opioid use for the last 6,000 years.

“My drug is better than your drug” is bigoted bullshit (because weed isn’t a substitute for heroin, or vice versa). C’mon, NORML and the cannabis community, stop vilifying heroin and its users. You’re better than that!

*Wayne R.
Brooklyn, NY*

You’ll have to forgive us for promoting cannabis and steering people away from deadly and addictive heroin by any means necessary, because we are not going to stop. Our drug is better than your drug.

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Contact High

MIDWEST WINNERS The 2017 Midwest Cup, held at the Auto City Speedway in Clio, MI this summer, boasted some truly beautiful buds. The competition was fierce and the flowers, concentrates, edibles, topicals and infusions left our judges awestruck by the Midwest's marijuana magnificence. Read all about the Midwest Cannabis Cup on page 83. *Photos by Justin Cannabis*



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(Arborside in collaboration with Dankems Hunter)



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(Lake Effect in collaboration
with Kalamazoo Vines)



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(Cannonymous Labs of Michigan)



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(Totally Herbal Care &
MiTerpFarmz)



SUPER SONIC CBD
(Radicle Genetics in collaboration with Valerio)



**BUBBLE GUM CURE AKA-DEAD
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(Buzz)



SCANDINAVIAN MOOSE LODGE
(LightSky Farms)



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233

1

58

57

Staedtler



November 2017 *High Times*

CONCENTRATED CANNABIS A modern day “concentrates case,” complete with extra nails and a variety of oil consistencies, is now a common sight among stoners along with their custom torches and “oil rig” cases. Read more about concentrates on page 44. *High Times Archive Photo*



INSIDE THE URBAN GROWROOM Pulling off a pot harvest while living in the crowded city requires know-how on odor control, noise suppression and much more. Learn tips and tricks for how to successfully grow your own marijuana in an apartment or other confined space on page 68. *Photo by Justin Cannabis*

**Contact
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Style

CannaSmack

CannaSmack uses Oregon-grown hemp to create hydrating lotions that soothe your skin. p.30



Entertainment

Savoy Motel

Nashville band Savoy Motel bring a unique sense of style to glitter rock. p.34



Green is good.

Is Pot Green Enough?

California has a reputation for its sustainable, environment-friendly lifestyle. But with an expanding agricultural sector (we mean weed), can the state safeguard Mother Nature? *By Mike DiPaola*

As the great state of California prepares to enter (and then dominate) the legal adult-use market for cannabis, there are fears that the environment might be sacrificed on the altar of cannabis commerce. Or, at least, that's how the argument is sometimes framed.

Item: Calaveras County—home to giant sequoias, Mark Twain's famous jumping frogs and decent zinfandel—is now pondering whether to ban marijuana cultivation. A draft environmental report released in April (and currently under public review) asserts that a countywide ban would be the “environmentally superior alternative” to having a regulated

industry. Citing air-quality and water concerns, as well as “odors” and other effects of agriculture, the draft report could be the death knell for the estimated 1,600 commercial grows in the county.

Item: A neighborhood association in Fortuna has filed a lawsuit against the county—Humboldt County, that is—to challenge a proposed 55,000-square-foot medical marijuana farm. Never mind that the farm isn't even within Fortuna's city limits; the neighbors aren't having it. Their complaint reads, “If the county's practice of rubberstamping cannabis cultivation applications...is allowed to continue, the county will suffer severe

environmental consequences.”

Part of the reactionary backlash in California can be attributed to NIMBY-ism, which rears its head whenever development of any kind is proposed in one's backyard, while another part of it is based on ignorance and bogus prohibition-era fears. But we should acknowledge that environmental concerns have real merit and must be addressed.

Indoor grows use massive amounts of energy, thus contributing to a sizeable carbon footprint. Outdoor grows use pesticides and rodenticides that can end up in groundwater supplies. Like any agricultural endeavor, growing herb requires a lot of water—a perennial issue in California. According to CalCannabis, the state's pot-cultivation licensing body, about 45 percent of California growers say they prefer indoor cultivation, which is generally more efficient with water use.

Of course, a main selling point for legal cannabis is its promise to make illegal grow ops obsolete. Guerrilla grows don't have to adhere to such inconveniences as environmental regulations, so the damage they wreak is extensive. Governor Jerry Brown recently disbursed \$1.5 million to help clean up the mess—rat poisons and other hazardous chemicals, fuel canisters, various other pieces of crap—left by illegal grows in the Emerald Triangle, the dank counties of Humboldt, Trinity and Mendocino. “These illegal grow sites do untold damage to forests and wildlife along the North Coast,” the governor said in a statement.

So much damage, in fact, that \$1.5 million is barely adequate to begin addressing it. Not for nothing, but regarding the aforementioned 1,600 farmers in Calaveras County: An estimated two-thirds of them run illegal ops. Banning pot cultivation would crank that up to 100 percent, and the environment would pay the price.

The good news is that more money is on the way, thanks to weed. Proposition 64—the measure passed in California last November to legalize adult use, which takes effect January 2018—includes funding mechanisms that support environmental initiatives. Twenty percent of the

Guerrilla grows don't have to adhere to such inconveniences as environmental regulations, so the damage they wreak is extensive.

tax revenue from the sale and cultivation of cannabis (predicted to top \$200 million per year) is earmarked for the state's Environmental Restoration and Protection Account, and specifically for California State Parks and the Department of Fish and Wildlife. These agencies plan to apply the funds to mitigation projects: restoring habitat and watersheds harmed by grow ops, enhancing the stewardship of wildlife areas, and beefing up the enforcement of environmental laws.

The Golden State is certainly taking the energy-use issue seriously as well. This summer, the California Cannabis Energy Summit convened to hash out the best practices for slashing energy use by growers and others in the state's about-to-be-huge adult-use market. The stakeholders are aiming for no less than a “net zero energy” approach, which might sound unrealistic until you investigate some of the cutting-edge innovations available.

“We're really trying to point the way toward a carbon-free future for cannabis,” says Derek Smith, executive director

of the Resource Innovation Institute, a nonprofit promoting resource efficiency in cannabis production.

“Cannabis runs the risk of being seen as an energy-hogging industry, but there's also a massive opportunity to build a model of sustainable enterprise that can transform broader agricultural practices,” Smith continues. “We can advocate for policies and utility incentives that make it easier to afford new techniques and technologies.”

Smith points out one such innovation, a chimney-like device developed by CCV Research that captures and disperses natural and artificial light over a garden canopy. It's designed to save beaucoup wattage: The company claims that indoor growers can slash their lighting costs by 90 percent.

Fortunately, the cannabis industry has plenty of participants who care deeply about the environment. A truly green industry will not only be good for the image of legal growers hoping to work in reluctant communities in California, but good for the planet we share as well. 🌱

HIGH FIVE *By Mark Miller*

Cannabis Keeps the Peace

Attorney General Jeff Sessions believes that legalizing pot increases crime and violence. The evidence proves that he's wrong.



Dispensaries

Keeping the crime rate down in America's second-largest city is no mean feat; however, that's exactly what medical pot dispensaries have accomplished in Los Angeles. After a 2013 ballot measure closed hundreds of pot shops, the crime rate in neighborhoods that were deprived of their dispensaries actually increased: Larceny, property crimes and auto break-ins all went up after the dispensaries went down.



Border Crime

A report from the *Economic Journal* in June 2017 found significant decreases in both theft and violent crime in states sharing a border with Mexico. Three border states—California, Arizona and New Mexico—all have some form of legal, regulated cannabis, and researchers attribute the significant drop in activity by drug gangs to superior-quality home-grown weed being more readily available for more Americans.



Violent Crime

A year after Colorado voters legalized recreational cannabis in 2012, violent-crime rates dipped 2.4 percent in Denver, and the Colorado Department of Public Safety found a 6 percent decrease in violent crime statewide from 2009 through 2014. The results were even more significant in Washington State, where crime fell an eye-popping 10 percent from 2011 (the last year pot was criminalized) through 2014, according to FBI data.



Property Crime

The Colorado Bureau of Investigation reported that the Rocky Mountain State experienced a 3.1 percent decrease in property crimes statewide during 2014. That's a tremendous development. But in the state's cannabis capital of Denver, the reduction in property offenses was even more impressive: In the year following the implementation of retail rec-pot sales, property crimes dropped 14.6 percent, according to FBI data.



Police Searches

In some cases, confrontations with police officers can escalate and end up badly for the citizens who are stopped and searched. But according to data analyzed by the Center for Investigative Reporting's *Reveal* website and the Marshall Project, legal cannabis helped account for a 34 percent decrease in searches of black drivers in Washington State, while searches of cars driven by whites and Latinos both declined 25 percent.

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Nevada Blazes Out of the Gate

The great state of Nevada launched its rec-pot program on July 1, barely six months after voters approved a ballot initiative that legalized it. First in line at the The+Source dispensary was State Senator Tick Segerblom, a longtime friend of the kind. Just after midnight, the senator scored the first sale, a pre-rolled joint of his namesake strain, Segerblom Haze. A good thing too, because weed proved so popular with state residents and visitors that, within two weeks, Nevada couldn't keep up with the demand. The problem wasn't an inadequate supply so much as a sketchy distribution system: Because the new law grants exclusive rights to alcohol distributors for the first 18 months, and because none of the eligible alcohol wholesalers had secured a distribution license in time, dispensary shelves were soon cleaned out. The State Tax Commission approved emergency measures to fast-track some distribution licensing, and the crisis was averted.

“Greece” Is the Word

Greece has become the sixth European country to legalize medical pot, joining the Netherlands, the Czech Republic, Finland, Portugal and Spain as EU nations with medical weed provisions. At a press conference announcing the legislation, Prime Minister Alexis Tsipras said the time had come for Greece to go green: “From now on, the country is turning its page, as Greece is now included in countries where the delivery of medical cannabis to patients in need is legal.” Tsipras also said that cannabis would be downgraded from a Table A drug—a classification similar to Schedule I in the United States—to Table B, in acknowledgment of weed's medical applications. As a country in serious need of another kind of green—Greece, the EU's most debt-burdened nation, has been ferociously punished over the last several years by its international creditors—a medical MJ program could give its anemic economy a much-needed boost.

LAWYER UP, FLORIDA



Florida legislators thought it would be a good idea to prohibit smoking as a means of using medical marijuana. But that decision didn't sit well with Orlando trial lawyer John Morgan, who also happens to be the author of the state's med-pot amendment, which was approved by 71 percent of Florida voters in 2016. Morgan has sued the state in an effort to throw out the implementing law. The dinguses who want to forbid toking, such as Republican State Representative Ray Rodrigues of Estero, think that allowing patients to smoke in the privacy of their own homes would be a “backdoor attempt” at legalizing the “recreational” use of marijuana. For his part, Morgan scoffed at the notion: “If something is not allowed in public, it is allowed in private,” he said at a press conference. (One good example: sex!) “It's as clear to all of you as it is to any first grader taking first-grade logic.” There's talk that Morgan might run for governor in 2018.

Jay Leno
poses with
a \$200,000
hemp car.

Hemp on Wheels

Legendary automobile fetishist Jay Leno recently took a spin in a car made from “home-grown material”—which is to say, hemp. The former *Tonight Show* host visited Underwood Farms in Somis, California, for his current CNBC show, *Jay Leno's Garage*, where he met Bruce Dietzen, the president of Renew Sports Cars. Dietzen, inspired by a hemp vehicle built by Henry Ford in the 1940s, is on a mission to make the world's greenest car. His \$200,000 prototype is a sporty red number, but Dietzen says a more modest \$40K model is in the works. The body, dashboard and rugs are all made from industrial hemp. Leno pounded on the hood to test the material's strength. (Verdict: It's strong). “Believe it or not, Bruce was not high when he invested \$200,000 to build this prototype,” Leno quipped. Rim shot!



Cut a line of chocolate!

Nose Candy

When the Florida supplement company Legal Lean rolled out its new Coco Loko, a snortable chocolate made of “infused raw cacao,” the world was introduced to a new delivery system for endorphins, serotonin and caffeine. But that news didn't

sit well with New York Senator Chuck Schumer, who has called on the Food and Drug Administration to investigate. “This suspect product has no clear health value,” Schumer said in a statement. “I can't think of a single parent who thinks it is a good idea for their children to be snorting over-the-counter stimulants up their noses.” The company insists the product is meant for adults and, more compellingly, that it “will give you a sense of calm focus and reduce the chatter and worry in your brain so you are able to accomplish many tasks at once and maximize your time and focus.” The FDA has not yet weighed in on whether it will begin regulating snortable chocolate.



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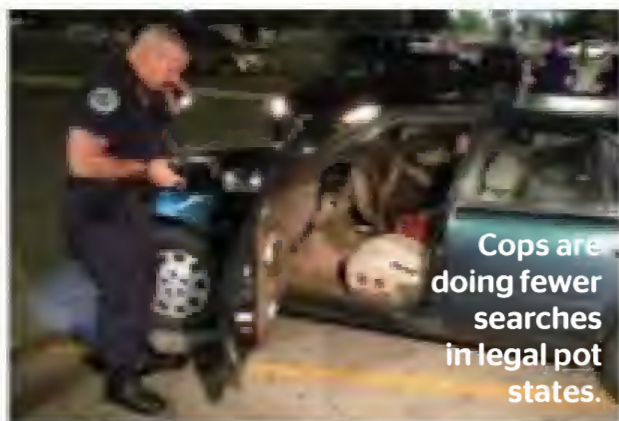


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Cops are doing fewer searches in legal pot states.

Car Searches Down, Racism Steady

Researchers at Stanford University have been looking at something that happens 50,000 times a day, 20 million times a year: An American motorist is stopped by police. The Stanford Open Policing Project has been culling data from 31 states, collating the records of more than 100 million traffic stops. The good news is that, in legal-pot states like Washington and Colorado, there's been a dramatic decline in vehicle searches by police. "That's because many searches are drug-related," the researchers note. "Take away marijuana as a crime and searches go down." While both white drivers and people of color were stopped far less often than they were in the days before legalization, the notable racial disparity in vehicle searches persists.

Off-the-Wall Coke Cockup

A Florida man spent 90 days in jail for cocaine possession, but it turns out the only thing he possessed was drywall. After a police stop, Karlos Cashe was booked for some white powder that the officers found in his car, which Cashe repeatedly insisted was in fact the entirely legal construction material. But police ran a check on him and found that Cashe was on probation for a 2015 conviction related to coke and marijuana possession. So they tossed him in the joint and sent the confiscated powder for testing; meanwhile, a court refused Cashe bail since he was now a probation "violation." Two months later, the results came back negative for drugs, but positive for drywall. Incredibly, another month passed before Cashe was released from jail, because Florida. "I was profiled," he told the Orlando TV station WKMG. "I was going to jail for something that night, and... they decided it would be cocaine." Cashe plans to seek compensation for the three months' work that he was forced to miss.

DENVER GOES PUBLIC



After some debate and hashing out of details following a voter initiative in 2016, Denver is poised to allow the consumption of weed at certain places of business. Coffee shops and restaurants are expected to be among the first wave of businesses applying to participate in the four-year pilot program, but there's been a lot of interest from bookstores, gyms and yoga studios as well. The permits cost \$2,000, but businesses that grow or sell marijuana aren't eligible, nor are bars or restaurants with liquor licenses—unless they plan to allow sessions at times when alcohol isn't being sold. Ironically, one of the main arguments for allowing marijuana use in these places is that it will help keep tokers and vapers from consuming in public—such as on sidewalks and in parks. The program is on schedule to launch before the end of the year.



Sign of the times

Tripping in the name of science

Spiritual High

Christian priests, Jewish rabbis and at least one Zen Buddhist are tripping balls at Johns Hopkins University in Baltimore, Maryland. More than 20 religious leaders have been recruited for a study in which they're dosed with psilocybin and asked to report on the results. Researchers at Johns Hopkins want to see if the psychedelic experience influences spiritual thinking and provides the study's subjects with new insight into their role as religious leaders. "With psilocybin, these profound mystical experiences are quite common," Johns Hopkins psychologist William Richards told the *Guardian*. "It seemed like a no-brainer that they might be of interest, if not valuable, to clergy." The study has enlisted priests from the Roman Catholic, Eastern Orthodox and Presbyterian churches; a Zen Buddhist and a number of rabbis are turning on as well. So far, the researchers haven't been able to recruit any Muslim imams or Hindu pandits.

Tackling Jeff Sessions

"Classifying cannabis as a 'Schedule I drug' is so irrational that it violates the U.S. Constitution." So argues a lawsuit filed by former National Football League player Marvin Washington and four other plaintiffs against Attorney General Jeff Sessions, the Department of Justice and the Drug Enforcement Administration. The suit's primary target is the Controlled Substances Act, which put the kibosh on Washington's plan to obtain federal grants to launch a medical marijuana business aimed at football players seeking to relieve pain safely, the *New York Post* reported. "The record makes clear that the CSA doesn't make any rational sense and the federal government knows it," said attorney Michael Hiller, speaking to the *Post*. Hiller represents Washington and the suit's other plaintiffs, including Alexis Bortell, an 11-year-old who needs medical marijuana to treat his epilepsy, and disabled veteran José Belen, who uses the drug to treat his post-traumatic stress disorder.



Sessions is under fire from all sides.



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Company co-founders Melanie McGraw and Aaron Burke were inspired to create their infused elixirs after bellying up to some of the best bars on the planet and sampling libations concocted by world-class mixologists. Crafted with fresh herbs, botanicals and extracts, each Monk recipe is whimsically numbered like a tonic from old-timey days and labeled with a specific application: Take No. 017 for pain relief, try No. 049 for an energy boost, or sip No. 052 for stress and anxiety.

Monk Drinking Botanicals supports integrated and wholesome living by making the most of the healthful effects of cannabis, McGraw tells us. “Cannabis is an amazing plant with so much complexity, and yet so many products on the market work against those benefits by packing drinks with refined sugars and artificial ingredients.”

Embracing the rich terpene profiles in California’s bounty of organically grown cannabis was also an integral part of crafting the Monk recipes, McGraw says. “California farmers work hard to produce beautiful, varied and organically grown cannabis. We wanted to match that level of goodness with each and every ingredient we use.”

Packed with super herbs and terpenes, these potions go down like a savory treat while boosting overall health and wellness. Each 4-ounce bottle contains 5 milligrams of THC and 5 mg of CBD. Serve over ice, chilled, or straight out of the bottle. Delish! Available in California.

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The story behind CannaSmack is a compelling one. Company founder Suzanne Hoggan lost her brother to prescription-drug abuse, which led her to research alternative medicines. As she learned about the benefits of cannabis and hemp, as well as the restrictive marijuana laws in her home state of Utah, she was motivated to launch CannaSmack as both a product line and a social-advocacy campaign (#FreeTheLeaf). The company donates 2 percent of all of its profits to support NORML.

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Illuminated,
with no illusions

Shooter Jennings on the Way to Freedom

How Waylon's son established his stylistic independence with an ambitious prog gambit. *By Chris Parker*

Every artist begins in the shadow of their influences and must find the strength and vision to forge a sound of their own. It's even harder for the children of famous musicians to make that break. For Shooter Jennings, son of country-music legend Waylon Jennings, it came in 2010, at the conclusion of his debut three-album deal with Universal's country label, Universal South.

"I left after the third record because the management had just changed, and I was just like, 'Fuck it—I want to do something that only I can do, which is going to really push it and allow me to get out of my head a little bit, out of what I'm supposed to do,'" Jennings recalls. "I wanted to do something that was an experience that didn't have anything to do with me and my career—more of an arty record."

The result was *Black Ribbons*, arguably the finest Pink Floyd album never made since Waters and Gilmour separated. The grim dystopian concept story is basically narrated by Stephen King: He plays Will o' the Wisp, a late-night radio host in his final hour delivering a diatribe about government conspiracy and cultural decline between cuts blending greasy rock and industrial-tinged prog played by Jennings's fictional alter-ego band-that-will-change-your-life, Heirophant.

Jennings self-released *Black Ribbons* reached #16 and #34, respectively, on *Billboard's* independent and rock charts—a strong showing given the lack of label backing and the left-field approach (compared to his country-rock pedigree). The whole experience helped establish that Jennings had

his own way of doing things.

In Los Angeles, where Jennings moved when he was 20, "I was really just another transplant, and the Waylon thing really didn't even come into play. I was grateful for who my dad was," Jennings says, "but I felt like I had gone out and made it on my own when the record came out—and then the shadow appeared.

"I had to put out a couple records like [*Black Ribbons*] over time, to the point where I've finally weeded out the guys that weren't there for me. Now I feel like I'm in a place where I can do

"I was just like, 'Fuck it—I want to do something that only I can do, which is going to really push it and allow me to get out of my head.'"

anything, and the shadow... there's only positive to it now."

Since then, Jennings has released the country album *Family Man* and its darker flip side, *The Other Life*; *Heirophant: The Magic*, a spoken-word companion to *Black Ribbons*; and tribute releases to George Jones and electronic-music pioneer Giorgio Moroder. The latter, *Countach (for Giorgio)*, came out last year with guest appearances by Brandi Carlile, the late Steve Young, and Jennings's childhood hero, Marilyn Manson, doing the Moroder/David Bowie hit "Cat People."

"When I finally met him," Jennings admits, "I had to fan-boy out for like a year before I could be friends with him."

Jennings, who never drank as a teen, discovered weed after graduating high school, courtesy of his girlfriend in Asheville, North Carolina—and after the first-time paranoia subsided, "it was all good." However, like many parents, his dad and mom (country star Jessi Colter) weren't thrilled, despite their outlaw heritage.

"It was weird," Jennings says. "My dad never smoked pot. My mom doesn't love that I smoke pot. But it's like, 'It could be a lot worse.'" ✨



Pot & Productivity

"I put my mental guard down and just do something," Jennings says. "It really does inspire you. Being in the studio, getting a little buzz on and just working out some new song or figuring out how to do a song a certain way... you can't beat it."

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These Nashville rockers have smokin' style.



The retro-'70s-clad quartet are easily recognizable among the freaks, geeks and Wall Street thieves of New York City.

(released last fall on What's Your Rupture) garnered admiring reviews from heavy hitters like *Pitchfork* and the *Guardian*, ultimately earning them a spot supporting fellow '70s-worshippers Lemon Twigs on a US tour, and then their own headlining affair.

Although it hasn't even been a year since their debut came out, "in our heads it feels like a really long time!" McFarland says.

Novak, who produces all of the band's records, agrees: "We finished [*Savoy Motel*] a year and a half before it came out."

According to Novak, the band have just finished their new album—"in between tours," says Watson gleefully—and plan to fine-tune it when they can grab a little downtime in Nashville.

Although their hometown continues its unprecedented growth, one thing that hasn't changed is the state of Tennessee's relative intolerance to weed. Last year, the Nashville City Council voted to partially decriminalize the possession of marijuana, only to have the State House and Senate block the bill this past spring. The band—all avowed smokers—will undoubtedly continue to find their way around this problem. At least, let's hope so: No '70s look is truly complete without a J or a bong in hand. ✨

Solid Gold Brass

More Champale and *Vice* than pink champagne on ice, *Savoy Motel* bring sparkling new life to glitter rock. *By Polly Watson*

Even in New York, you can see Savoy Motel coming. The *High Times* team is stationed on a rooftop high above Broadway, just blocks from the Brooklyn club that the Nashville band are playing later that night, when we receive word that they're on their way. Rushing over to the edge of the roof, we instantly spot the retro-'70s-clad quartet, who are easily recognizable among the freaks, geeks and Wall Street thieves who make up the neighborhood's constantly shifting population. As the band members reach the roof and step through the ramshackle doorway one by one, we can't help but remark on their amazing style: Each one looks as though he or she has stepped out of a vintage Virginia Slims ad.

As it turns out, Savoy

Motel's carefully curated aesthetic is what originally gained them attention. "We'd recorded two albums before we played our first show," says flame-haired guitarist Dillon Watson. "But there was just no interest."

"Until we had a photo," bass player/vocalist Jeffrey Novak adds drily.

"We all kind of look like we've always looked," says drummer/vocalist Jessica McFarland, "but I guess we look good together."

McFarland's explanation for their unplanned yet uniform appearance speaks to the band's real appeal: They *are* natural together. Having played collectively in various configurations in previous standout Nashville bands—notably Heavy Cream and Cheap Time—the four are longtime friends who "always

knew" they'd all be in a band together someday.

Their comfort level with one another carries over to the music—which is unsurprising, given the attention they've paid to it. Whereas most bands would rush through a handful of practices before hitting the stage, keen to unleash their songs on the world, Savoy Motel "made a point of rehearsing for six months" before they played their first show, Novak says. Their tinny, good-time, junk-shop glam shakes, grooves and stutters with a party vibe, and their self-titled debut



Birthday Bliss-Out

Guitarist Mimi Galbierz recalls a tour she and McFarland did with indie hard rockers RTX: "Jennifer Herrema [RTX's front woman] gave me a slice of weed cake for my birthday! But I don't think I shared with anyone. Which was bad, looking back."

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HR of Bad Brains

An Eccentric Life

The story behind the struggles of an iconic punk-rock frontman.

For loyal fans of the hugely influential DC hardcore punk band Bad Brains, lead singer Paul “HR” Hudson will always remain an enigma. Formed in 1977, Bad Brains’s earliest recordings and live performances exhibited a unique intensity that changed the course of rock history. The band’s pioneering combination of faster-than-fast thrash and loose dub-style reggae vibes proved irresistible to audiences, and much of their appeal had to do with HR’s vocal and physical acrobatics.

Over time, his eccentric charisma gave way to unexplained antics that loom large in Bad Brains’s storied history, as HR became more interested in the Rastafari faith and began to reject the violence and perceived negativity of the mosh pit. As both the driving force and impeding anchor behind the band, HR built a reputation for sabotaging successful record deals and comeback tours. He seemed angry and delusional, and many began to wonder if he was mentally ill.



Finding Joseph I: The H.R. From Bad Brains Documentary
James Lathos
(Small Axe Films)

Directed by James Lathos and featuring a score by Miguel Hoppoldt from Sublime/Long Beach Dub Allstars, the new documentary *Finding Joseph I* seeks to separate the facts and the fiction of HR’s seemingly schizophrenic downward spiral. The interviewees include HR himself, members of Bad Brains and their management, and Ian MacKaye (Minor Threat/Fugazi), as well as members of Sublime, Deftones, Fishbone, Cro-Mags, Murphy’s Law, the Wailers and Living Colour.

Slowly, a loving portrait emerges of a complex man troubled by severe headaches and even severer hallucinations as his genius gives way to madness. Seemingly forever poised on the verge of success, the darker side of HR’s creativity expressed itself as a rejection of his influence and legacy—but also a deep desire to reveal his true self. Will HR emerge from his struggles reborn, or continue his descent into insanity? Smoke a bowl and watch this excellent documentary to find out. *Danny Danko*

MUSIC RECOMMENDATIONS



Snoop Dogg
Neva Left
(Doggy Style Records)

Always loyal to his brand, Snoop Dogg drops two pro-marijuana tracks on *Neva Left*, “420 (Blaze Up)” and “Mount Kushmore,” the highlights of this outstanding new release. The album’s old-school roots forgo modern rap’s current trend of absurd lyrics and beatless compositions, keeping the subjects

wisely constrained to weed, bitches, haters and living your motherfucking life. Having listened to Snoop’s music exclusively on the radio and at clubs, experiencing a full hour of the hip-hop elder statesman’s lazy brilliance left me dizzy and buzzing—and I immediately played it again. *Tommy Smith*



Boris
Dear
(Daymare Recordings)

Boris, Japan’s beloved and fearless experimental sludge-mongers, have returned with an album marking the group’s 25th year of releasing unpredictable records that bend both time and space, and rarely adhere to genre classification. *Dear* is an epic journey through the many facets

of Boris’s sound, delivering droning-guitar incantations, post-Sabbathian riffing, and swirling, bad-trip psychedelia, all within the trio’s larger-than-life sonic aesthetic. The result is heavier than an irradiated thunder lizard tap-dancing through Tokyo. It’s a document of a band at its peak. *David von Bader*



Eliot Lipp
Skywave
(Young Heavy Souls)

Eliot Lipp is no carbon-copy DJ whose act consists of raising his hands above a laptop—rather, he constructs innovative soundscapes that endure long after the party’s over. On this latest collection of musical montage, Lipp fuses genres like disco and electro on “Tides,” while “Advance” experiments with

meshing voice and beat. Part of Lipp’s magic is keeping your ears guessing as to the next audio experience coming ’round the bend, such as the album closer “Rise Fall Rise,” in which blissful techno achieves an antithesis with daunting dubstep to fulfill Lipp’s aural enterprise. *Mark Miller*

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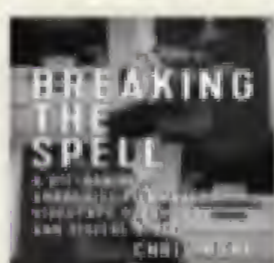


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Brad Epstein
(Amazon Video)

Russell Peters is a funny guy with millions of Twitter followers, and he’s well-matched with actor Faizon Love. Both of these guys dive into the time-traveling premise of *Ripped*, which combines elements of Rip Van Winkle and *Hot Tub Time Machine*. But *Ripped* suffers from a chronic issue

among cannabis comedies: It lacks the authenticity of classic stoner duos like Cheech & Chong or Harold and Kumar. They came from cultures where weed was integral to the comedy. *Ripped* falls short of that important benchmark. Let’s hope that future weed comedies raise the bong higher. *Ben Berkowitz*

BOOK RECOMMENDATIONS



Breaking the Spell
Chris Robé
(PM Press)

The Sony Porta Pak was introduced in 1968, making cheap technology to shoot video available. In this history of “anarchist filmmakers, videotape guerrillas, and digital ninjas,” Robé describes activists like the Videofreex collective, who seized the sociopolitical narrative from corporate

control. The hippie, punk, Occupy and Copwatch movements were able to challenge networks and Hollywood studios, and the Internet and cell-phone cameras made everyone a potential Michael Moore. Robé analyzes this genre of subversive video, with an unwavering passion for justice. *Michael Simmons*

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California's Eureka Moment

The Golden State could become the “big domino” needed to end federal marijuana prohibition.



J.J. McCoy is Senior Managing Editor for New Frontier Data

NOVEMBER IS TRADITIONALLY election season in the United States, but even apart from being an off-year cycle at the polls, this fall looks to be very quiet compared with last year's watershed events for the cannabis industry and the legalization and reform movement nationwide.

A year ago, voters in five states—Arizona, California, Maine, Massachusetts and Nevada—went to the polls to decide whether to legalize the adult use of cannabis, while voters in four other states—Arkansas, Florida, Montana and North Dakota—passed medical cannabis programs. Only the residents of Arizona voted against legalization.

Last year's biggest story by far was California, and not only because the vote there ultimately made cannabis legal along the entire West Coast. In November 2016, 57 percent of Californians voted for Proposition 64, the Adult Use of Marijuana Act (AUMA), to establish a regulated recreational-pot program in the nation's most populous state. Prop 64 allows adults 21 and older to possess up to one ounce of cannabis and to grow up to six plants at home. Beyond laying the groundwork for a statewide regulatory system, AUMA also creates two taxes on cannabis businesses, one on cultivation and the other on retail sales. The state will begin accepting applications for cannabusiness licenses in January 2018, though recreational sales and many of the law's taxing and licensing provisions won't take effect until midyear.

California's state motto is “Eureka” (“I found it”), and what we find there in the coming years will inform America's cannabis industry and its social influences in profound ways. As the world's sixth-largest economy, California's embrace of a legal adult-use program will automatically make it the capital of the nation's cannabis market. With a population of nearly 40 million people, and having already established a medical cannabis market worth about \$2.7 billion, California is poised to become the world's epicenter of both cultivation and social use.

2016 ELECTION RESULTS UNDERSCORE BIPARTISAN SUPPORT FOR LEGALIZATION



Having already established a medical cannabis market worth about \$2.7 billion, California is poised to become the world's epicenter of both cultivation and social use.

As noted in New Frontier Data's *Cannabis Industry Annual Report: 2017 Legal Marijuana Outlook*, the legal cannabis market in the United States was worth an estimated \$6.6 billion in 2016, with annual sales projected to grow at a compound annual rate of 16 percent and reach more than \$24 billion by 2025. In California alone, legal cannabis sales are projected to reach \$2.8 billion in 2017; supported by the activation of a regulated adult-use market, annual sales are projected to grow at a compound annual rate of 12 percent over the following eight years, reaching an estimated \$6.6 billion *just in that state* come 2025.

Luke Stanton is the managing partner of the Frontera Law Group, based near Los Angeles. When it opened in 2015, Frontera became one of the first law practices in California to focus specifically

on cannabusiness issues. Looking forward to the long-awaited opening of the state's adult-use market in 2018, Stanton has solid expectations for both the short and long term. He believes that the first major effect of Prop 64 will be cannabis companies' acquiring greater access to capital markets and the investment community. Further out, he anticipates California's adoption of an adult-use market to represent the “big domino we needed to see fall nationally, and the harbinger of the end of cannabis prohibition in America. It's not going to be immediate,” Stanton adds, “but it's coming.”

Stanton envisions a timeframe in which the California market fully comes into its own somewhere between 2020 and 2022. “I think that's just the amount of time it's going to take guys who are growing large-scale to get their systems dialed in,” he says. “And then in five years, of course, under AUMA, all the canopy-size limits come off. Then you're going to see people come in—I'm sure from Big Tobacco and other worlds—and try to mass-produce quality cannabis, which I think will be hard to do. But I think that's when you'll see commoditization hit California.” ✨

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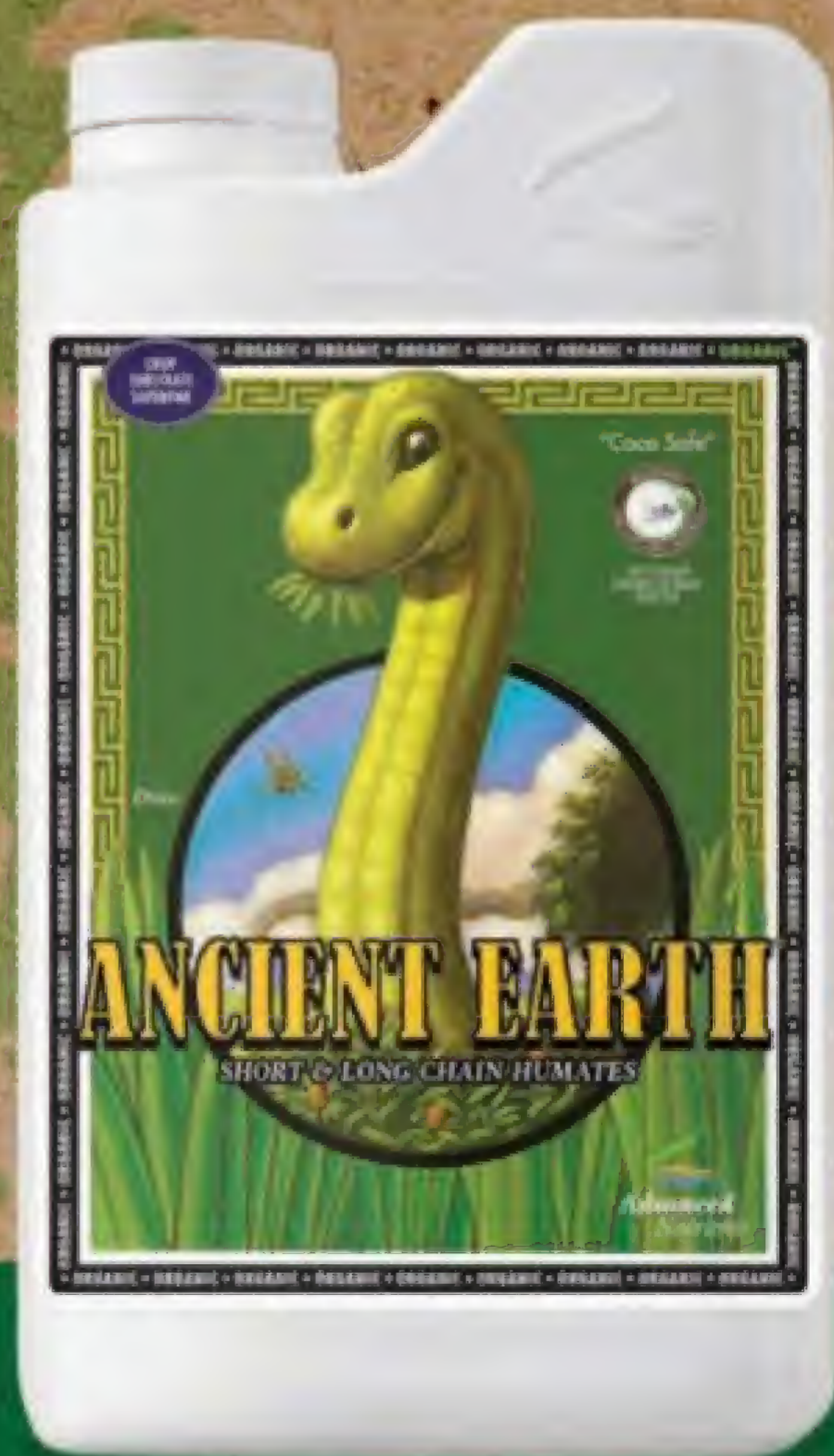
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 "Don't bother checking your watch while smoking this spacey sativa."
 -San Francisco, CA

(Northern Lights #5)
 "Very mellow, relaxing high."
 -Bennington, VT

TRANS HIGH MARKET QUOTATIONS

STATE	CITY	STRAIN	PRICE
ALASKA	Fairbanks	Chocolope	280
	Juneau	Girl Scout Cookies	300
ARKANSAS	Bentonville	Strawberry Kush	420
ARIZONA	Glendale	Blue Diesel	200
CALIFORNIA	Los Angeles	Grape Crack	235
	San Francisco	Timewreck	300
COLORADO	Boulder	Durban Poison	250
	Denver	Gorilla Glue #4	235
DELAWARE	Newark	MK Ultra	400
FLORIDA	Palm Beach	Girl Scout Cookies	360
GEORGIA	Conyers	Blue Dream	280
ILLINOIS	Chicago	Purps	280
	Waukegan	Banana OG	420
KENTUCKY	Louisville	Tangerine Haze	280
LOUISIANA	Baton Rouge	Blue Dream	430
MAINE	Auburn	OG Kush	280
MARYLAND	Hyattsville	Gorilla Glue	420
MASSACHUSETTS	Boston	Trainwreck	320
	Chelsea	Granddaddy Purple	240
MICHIGAN	Ann Arbor	Motorbreath	450
MISSISSIPPI	Cleveland Oxford	Birthday Cake	420
MISSOURI		Strawberry Cough	280
	Blue Springs	White Rhino	280
MONTANA	Bozeman	White Rhino	250
NEVADA	Las Vegas Reno	Blue Dream	300
		Gorilla Glue #4	280
	Manchester	Blueberry Kush	430
NEW JERSEY	Collingswood	Bubba Kush	320
NEW MEXICO	La Cruces	Blue Dream	280
NEW YORK	Rochester	Blueberry Kush	420
NORTH CAROLINA	Burlington	White Widow	430
OHIO	Canton	Green Crack	280
OREGON	Beaverton	Lemon Diesel	190
	Eugene	Sour Apple	290
PENNSYLVANIA	Pittsburgh	Blackberry Kush	420
SOUTH CAROLINA	Sumter	Black Jack	280
TENNESSEE	Memphis	White Widow	280
TEXAS	Dallas	Blue Cookies	420
	Houston	Chocolope	420
UTAH	West Jordan	Gorilla Glue	160
VERMONT	Bennington	Northern Lights #5	280
VIRGINIA	Richmond	Girl Scout Cookies	350
WASHINGTON	Seattle	Headband	250
	Tacoma	Cookies & Cream	335
WEST VIRGINIA	Martinsburg	Gorilla Glue	440
WISCONSIN	Green Bay	Fruity Pebble OG	400
		OG Kush	450
INTERNATIONAL			
CANADA	Barrie	Cherry Pie	C\$367
	Mississauga	Sour Diesel	300
UNITED KINGDOM	Birmingham	Cheese	£180
	London	Amnesia Haze	£240

MARKET ANALYSIS

Prices by the ounce

Prices continued their decline nationwide, with the Eastern Index dropping to its lowest average (\$349) since February 2017. The Southern Index also experienced a drop in price, finishing the month \$5 below its previous month's average. And the Western Index was also down from October. Nationally, ounces are averaging just \$324, the second lowest US Price Index average of the year.

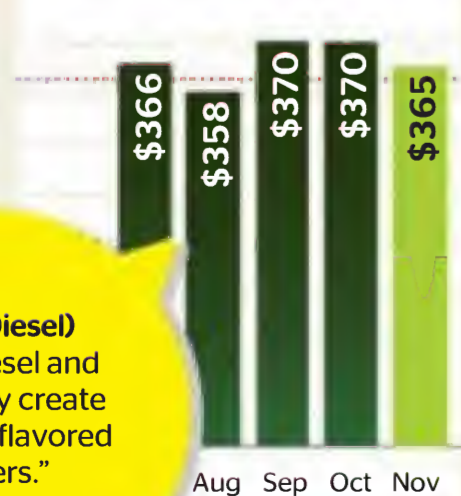
US Price Index
 YTD Average: \$331



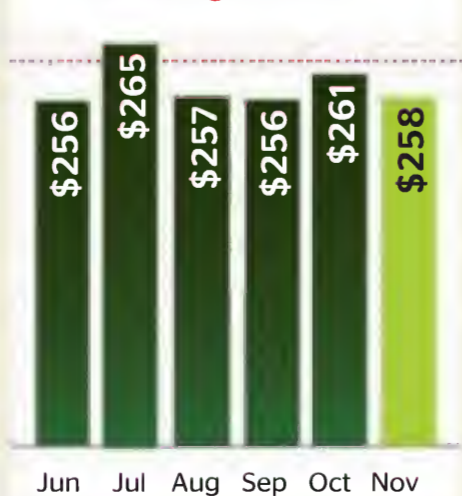
Eastern Index
 YTD Average: \$352



Southern Index
 YTD Average: \$364



Western Index
 YTD Average: \$263



(Blue Diesel)
 "NYC Diesel and Blueberry create delicious flavored flowers."
 -Glendale, AZ

(Cherry Pie)
 "Beautiful looking, great tasting buds."
 -Barrie, CANADA

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A heaping scoop of Lemon G live resin THC-A crystals slathered in terpenes ready for a hot nail



Concentrated Cannabis

Part II: The Tao of Dab by Sean Black

Never before has there been such astonishing progress in the science of cannabis and our understanding of how it works in conjunction with our bodies and minds. The recent innovations in the hugely popular world of concentrates illuminates how effective and important a role they'll play in the cannabis community. In Part 1, we looked at the history of concentrates, the different types and how they're made. Now let's take a look at how cannabis concentrates work, explore new and improved techniques to extract and consume them, and examine the overall promise that concentrates may hold for the future. *By Sean Black*



The Synergy of Terps and THC

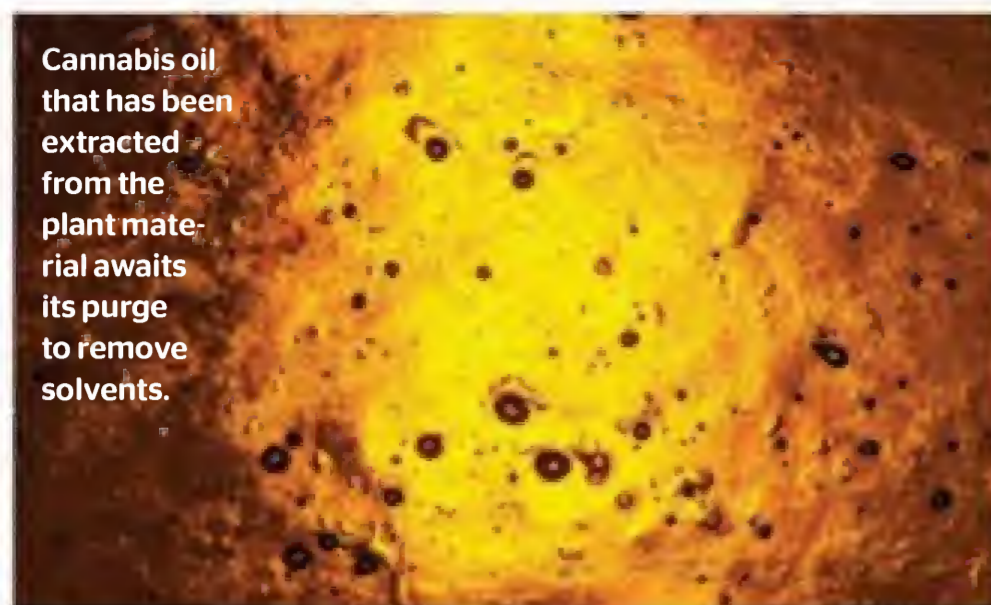
As any reader of *High Times* likely already knows, cannabis is made up of cannabinoids like THC, CBD, CBN and the essential oils known as terpenes.

One of those cannabinoids, an acidic carboxyl group known as THC-A, has many health benefits, including neuroprotective and anti-inflammatory properties, as well as helping to regulate the body's endocannabinoid system. But the magic really begins when THC-A is heated to 220°F. The carboxyl group is removed from THC-A through a process known as *decarboxylation*, leaving behind THC, the psychoactive component of cannabis that provides the euphoric feeling of being high. Yet THC by itself has no real direction: There is no specific guidance to the way it makes you feel—much like the erratic sounds of a piano with a cat strolling across the keys.

Terpenes play an integral role in managing the specific effects of cannabis. These are the essential oils that lend their distinctive tastes and aromas to the plant. When terpenes are applied to THC, the effect is greater than the sum of its parts (commonly known as the “entourage effect”), and the result is a mystical synergy that complements the human body and mind. Think of it as something like the way a car works: THC is the catalyst, the gasoline that powers the engine, but without something steering, the car drives around aimlessly. Terpenes are the steering wheel

that guides the car in its journey and directs its particular path.

Myrcene, a terpene with an earthy smell much like a mixture of gasoline and cloves, provides a sedating, muscle-relaxing and appetite-stimulating effect when smoked with THC. Ever sink back into the couch after a toke and suddenly realize that three hours have gone by? You most likely have myrcene to thank for that. Conversely, the terpene known as limonene produces a pronounced citrusy scent. What happens when you smell a fresh lemon or orange early in the morning? It wakes you up and gets the blood going. Combined with the entourage effect of THC and other cannabinoids like CBD, CBN and CBG, limonene invigorates you: The mind opens up and soars, creativity flows, and the body becomes energized with increased motivation. Not only is this an enormously pleasant feeling, but it's also very useful as a tool for mental enhancement. Figuring out how the terpene profiles of specific strains affect the individual can allow the cannabis consumer to select particular strains for their desired results, much like people use different pharmaceuticals—although cannabis doesn't come with all of the negative side effects of pills. Want to stimulate the mind, stir the creative juices, and get yourself motivated? Dab some Haze or Jack Herer—*sativas* that contain limonene along with other uplifting terpenes like terpineol and linalool. It truly is a sort of scientific aromatherapy!



Cannabis oil that has been extracted from the plant material awaits its purge to remove solvents.

More on Terpenes

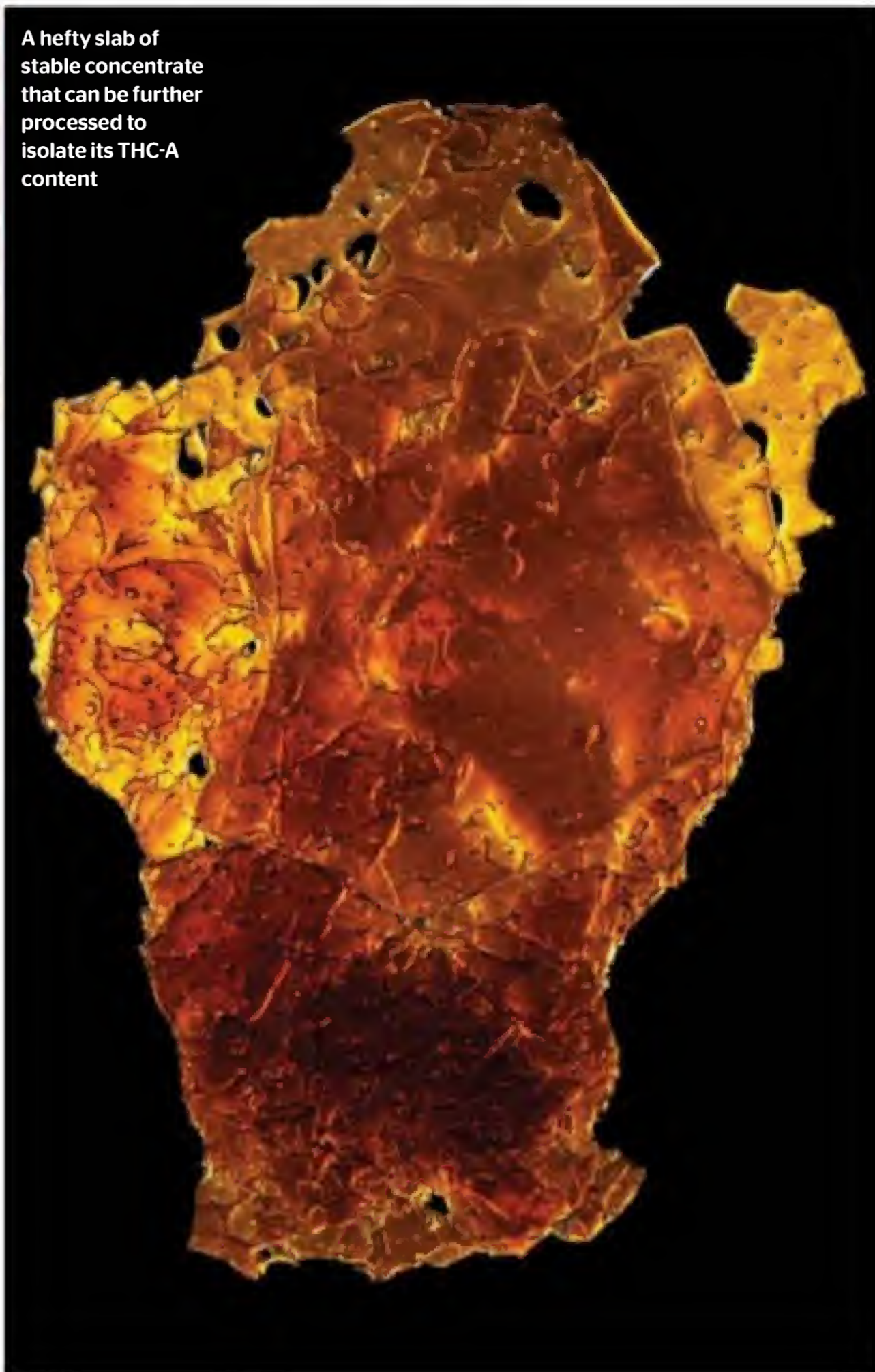
The term “terpenoid” is often used to describe a compound while it’s still present in a living flower. The difference between *terpenes* and *terpenoids* is that terpenes are hydrocarbons, whereas terpenoids contain additional functional groups. These groups are other atoms or bonds within molecules that are often lost during drying or curing, thus resulting in a compound known as a terpene. There are nearly 200 terpenoids that have been identified in cannabis, and most are found in other plants as well.

For example, citrusy limonene is indeed the same terpene found in lemons. When isolated and put side by side, the limonene in cannabis and lemons have identical molecular structures. Moreover, monoterpenes like pinene will vaporize more rapidly at lower temps, while sesquiterpenes like caryophyllene and humulene vaporize only at higher ones. Preserving them all is one of the keys to providing full-spectrum, unadulterated flavor—precisely what the cannabis plant’s essential oils “map out.” It is also important to understand that the effects that each terpene produces are changed when combined with other cannabinoids or terps. THC combined with limonene might provide an uplifting effect, but may produce a completely different result when combined with myrcene.

Here’s a look at some of the major terpenes, as well as their effects and boiling point in vaporizers.

Terpene	Effects	Boiling Point
Limonene	A citrusy terp with the aroma of lemon and orange. Elevating mood and energy, limonene also has anti-bacterial, anti-fungal and anti-carcinogenic properties.	349°F
Myrcene	One of the most prevalent terpenes found in cannabis. Musky and earthy, with notes that can tickle the nose, myrcene is also found in parsley, mangos and hops.	334°F
Linalool	A spicy, slightly gassy terp that can be found in birch, cinnamon and lavender.	390°F
Eucalyptol	Smells like rosemary and eucalyptus; provides a relaxing and centering effect.	351°F
Humulene	Found in large amounts in hops, and with the same distinctive odor. Humulene occurs in higher levels in <i>sativas</i> and is known for giving an uplifting, energetic feeling.	225°F
Camphene	Often used in food flavoring and additives. Found in turpentine, citronella oil, ginger oil and valerian.	318°F
Pinene	Lends a strong aroma of pine trees; when combined with THC, can provide a body-relaxing, sedating effect. Pinene is found in other conifer trees, rosemary and turpentine.	313°F

A hefty slab of stable concentrate that can be further processed to isolate its THC-A content



The Science of Dabbing

Understanding the fundamentals of how THC-A is converted into THC, as well as how terpenes volatilize, will provide a crucial insight into how to consume concentrates in a more refined way, especially when dabbing. For the uninitiated, dabbing is the process of applying a small amount of concentrate (or “dab”) to a hot surface (“nail”) that’s affixed to a specialized bong (“rig”); the concentrate is then vaporized and inhaled without the nasty fumes of a lighter, the harsher smoke of plant material, or other unnecessary components of cannabis that don’t add to the high.

Knowing that THC turns from oil into vapor at 314.6°F, and that the most stable terpenes and cannabinoids vaporize at a maximum temperature of 428°F, tells us that temperatures much higher than that can scorch or even burn these components of the dab, leaving a burnt black tar on the nail. This essentially incinerates the dab’s terpenes as well as the “mapping” effect they create for the flavor and high.

In fact, when you light a joint, it’s the plant material just before the ember that gets you high, not the material burning *in* the ember. The heat emanating from the ember is enough to provide temperatures sufficient to convert the THC-A into THC and volatilize everything in the adjacent plant material. As mentioned, THC reaches its boiling point at 314.6°F, and all of the other cannabinoids and terpenes at no higher than 428°F, while the ember of a joint can reach 1,300F! Thus, the greater portion of the cannabinoids and terpenes in the ember have already been incinerated.

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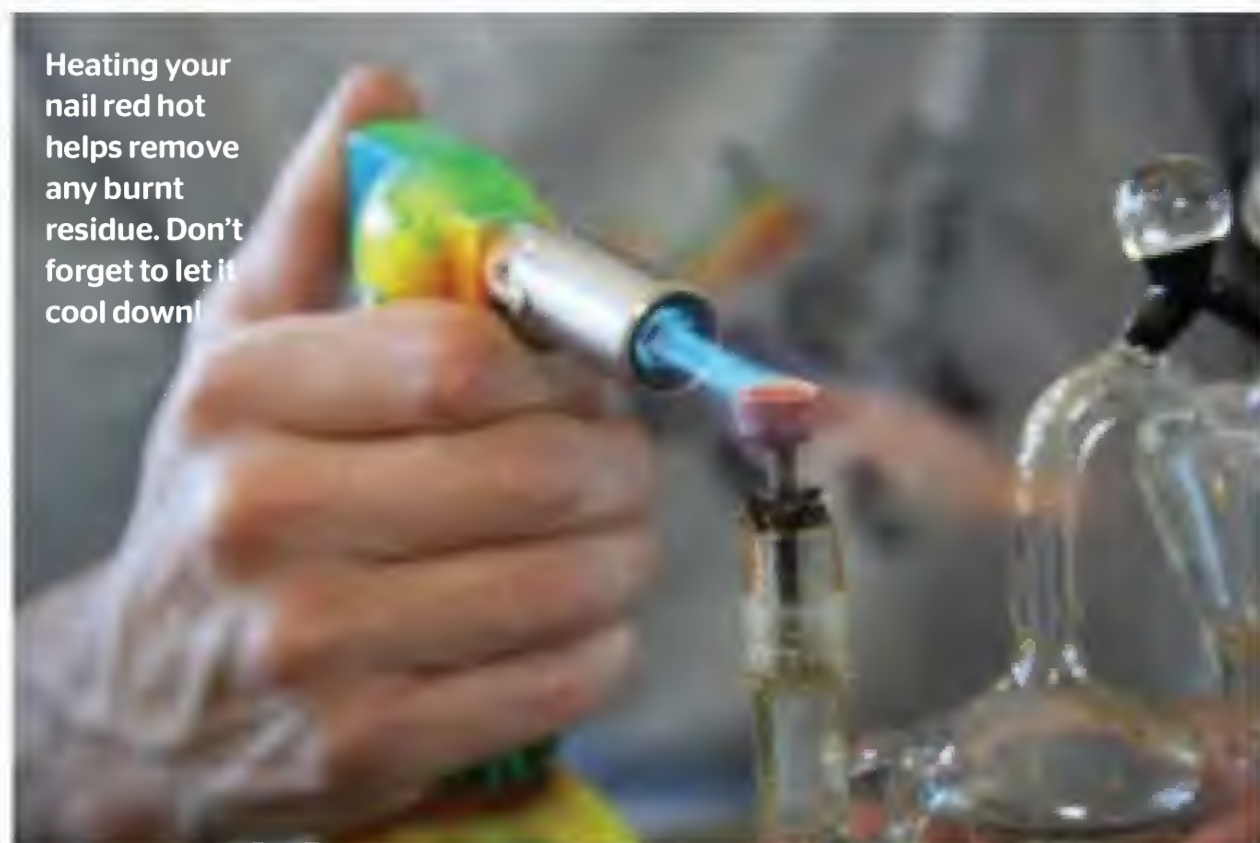
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Heating your nail red hot helps remove any burnt residue. Don't forget to let it cool down!

Gone are the days when nails were dabbled while still glowing red-hot from a torch.



Lower quality dry wax is ideal for further isolation techniques.



Quartz nails and domeless bangers provide a cleaner and purer dab.



Nothing beats a single solvent run of high quality herb.

Clean Dab Etiquette

Gone are the days when nails were dabbled while still glowing red-hot from a torch. Growers and extractors are so meticulous in creating the best terpene-filled concentrates that it would be a shame to degrade the high-quality flavors in the process of enjoying them. There are a few new tools that have been added to the dabber's arsenal in order to elevate the experience of smoking concentrates: These include a timer, cotton swabs, rubbing alcohol, a "carb cap" and some patience.

While quartz nails and "bangers"—i.e., an elongated, curved stem with a bucket nail—aren't particularly new, they provide the easiest kind of surface to keep clean, since the walls are smooth, leaving little purchase for the residue to cling to. Even so, any buildup of residue will quickly grow, as it provides a place for the next dab to seep into and smolder, lending a slightly burnt flavor to the experience. Remember, the goal is to enjoy a fresh dab without incinerating the terpenes and cannabinoids, which provides a cleaner, more specific high reflecting the natural properties of the strain being smoked.

Wiping down the surface of the nail with a cotton swab soaked in alcohol will clean up most of the residue from a previous dab. Using the torch and getting the nail red-hot, you can focus your cleaning efforts on any dark spots until they burn away; this will

ensure a clean surface and extend the life of the nail exponentially.

The key here is to wait for the nail to cool off to an appropriate temperature. Remember, THC vapes at 314.6°F, and the most volatile cannabinoid maxes out at 428°F. This is where you should cue the timer: Depending on the thickness of the nail, use the timer to figure out long it takes the nail to cool from red-hot to an appropriate temperature (laser thermometers work well here). The nail should be hot enough to bubble and boil the dab when applied, but not so hot as to throw off lots of smoke—just a tiny bit. It's not until you cover the nail with the carb cap (which restricts the airflow and creates convection) that the oil should start to smoke heavily.

Depending on how thick of a smoke you want, you can adjust the time. The leftover residue on the nail should be just a shade or two darker than the dab in its raw form in the jar. If it's turned black or gotten too dark, the terpenes and some cannabinoids have been scorched or burned away, changing your toking experience. One of the most important things here is finding that sweet temperature spot for the nail, since thinner nails cool off faster, while thicker ones retain their heat more steadily—but also need more time to warm up and cool off. Also, cleaning the nail while it's still warm is infinitely easier than cleaning one that's cooled off.

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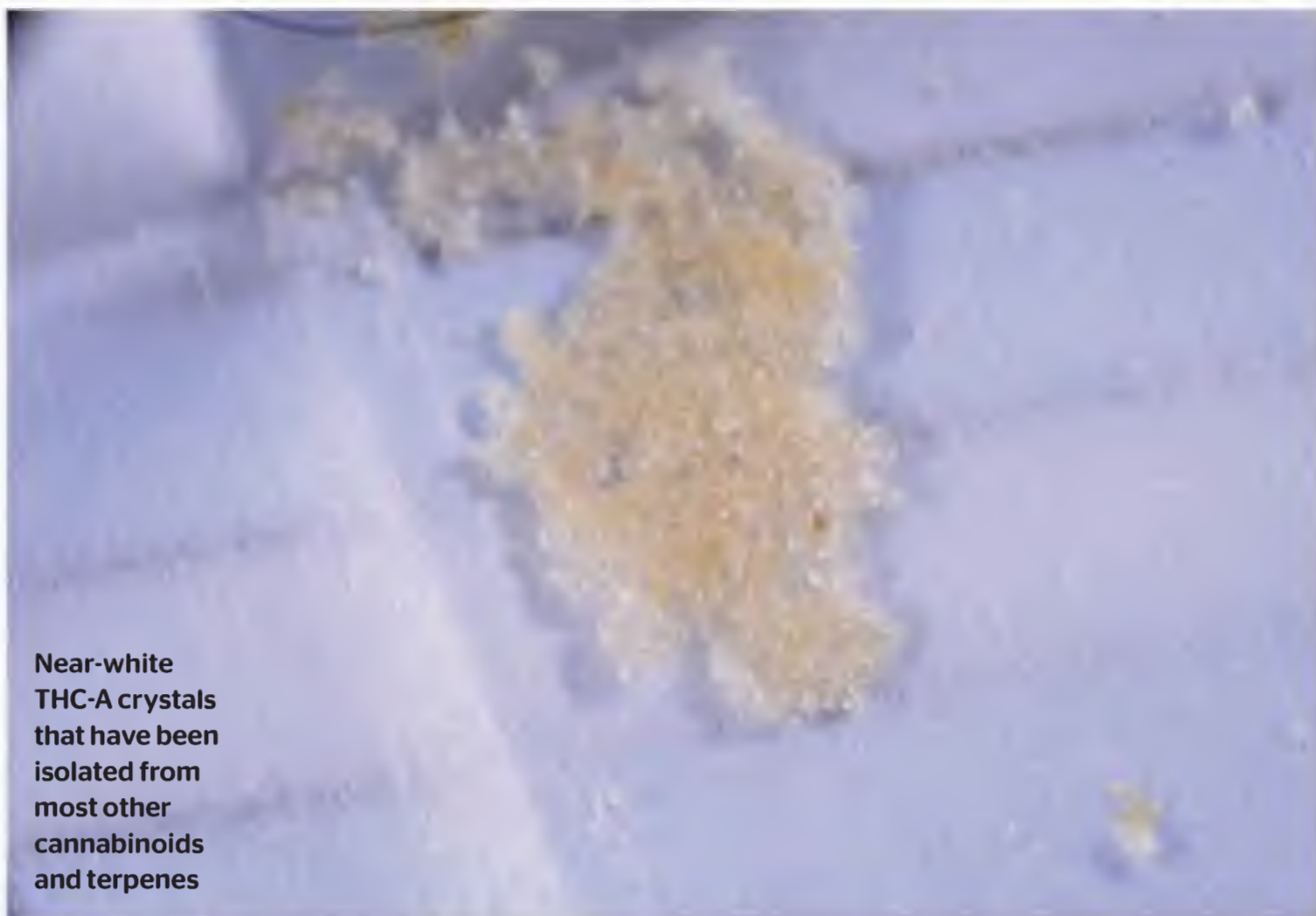
Concentrate Advances

Talking about the progress in concentrates could involve a new conversation every day, since that progress advances at such a rapid pace. More and better science has cultivated a scene that has revealed ways to further isolate what cannabis has to offer and use it in new and beneficial ways. Now that we've improved our understanding of how to consume concentrates, let's discuss some of the newer extraction techniques and products.

Distillates account for a significant portion of the concentrates being consumed at present. Runny like maple syrup, distillates can be found in oral syringes in order to dispense easily. Most often, you'll find them in pre-filled vape-pen cartridges, as the fluidity allows for a better contact to the heat source. But what exactly is a distillate? They're often made using hydrocarbon solvents (butane, propane, pentane, hexane, etc.) in a wiped-film short-path distillation process—a method that uses a Roto-Vape, a concentrate-filled flask sitting in a bath that spins while the water is slowly heated.

As the heat rises, each component of the concentrate turns from a liquid into a gas. The gases travel up tubes and recondense at their components' specific temperatures, collecting in different chambers. This allows the cannabinoids to be separated from the terpenes and other elements, leaving a sometimes golden-colored liquid. Even more advanced, some processors are able to perform this whole process under vacuum. This allows the heating of the material to occur at much lower temperatures, as the boiling points of the various components are reduced under lowered atmospheric pressure. This decreases the degradation of the material and keeps the end result as clear as possible. It is very important to note that this does *not* remove all remnants of pesticides or industrial chemicals—which is why there's no substitute for growing organic, pesticide-free cannabis.

CBD isolate is a pure form of CBD that can be extracted from high-CBD cannabis and hemp. Somewhat similar to the short-path distillation process, the procedure should be repeated several times to ensure a purer product before immersing the distillate into pentane or hexane. Heat is applied and then the distillate cooled several times. Some extractors drop in a few "seeds" (i.e., a few small CBD crystals) to help instigate growth and quicken the process. If left in a dark and undisturbed location, the crystals will start to bloom. When the crystal growth slows down, the



Near-white THC-A crystals that have been isolated from most other cannabinoids and terpenes



A jar of pure CBD isolate crystals

remaining pentane is vacuum-purged and the beautifully formed crystals removed. If desired, one can further refine the crystals by a light washing to remove any impurities from their surface.

THC-A crystalline can look like a quartz crystal and is derived in an almost identical process as CBD isolates. The major differences start with the material that is being extracted. Strains high in THC-A but low in CBD will precipitate THC-A crystals, while low-THC/high-CBD strains and hemp (i.e., with less than 0.003% THC) will result in CBD crystal blooms. CBD has a lower boiling point, which can make it easier to isolate; THC-A can be a bit more finicky and requires more attention. Matt Van Benschoten of Beezle Extracts says that his company goes so far as to "place our resting material on thick mats, to keep any shaking or vibrations from disturbing



THC-A crystals with a thin film of mother liquor ("terp sauce")

Sweet Leaf



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the blooming process, as they can terminate crystallization.”

Tony Veruza, CEO of Blue River Extracts and the winner of several Cannabis Cups, says that his company has found that it can even “grow” crystals in a good amount of terpenes instead of using a second solvent (since terpenes are a solvent themselves). This eliminates the need to introduce solvents like hexane or pentane and then worry about purging them completely, since it can be difficult to fully purge some solvents from THC-A in crystal form and will sometimes require several washes to maintain purity.

High-terpene, full-spectrum extractions, or HTFSE, have become highly popular of late and generally provide a very potent smell when opened due to the high ratio of terpenes present. Usually, the plant material used for these extractions will be fresh, undried and uncured—i.e., material that’s been kept cool in order to preserve the maximum amount of terpenes. A live resin base is extracted using a solvent such as butane, pentane or the like. This extract then gets put in a large jar and set to rest and cure for a week or two. “THC-A wants to be in crystal form, and given enough time and the proper environment, it will eventually crash out and separate,

Cannabis terpenes can be very expensive to extract due to their low yields: Isolating 8 milliliters of terpenes from a pound of cannabis flowers is an average yield with good material.

with crystals on the bottom and the terpenes up top,” Van Benschoten says. “This makes an apple-sauce-like end product that is high in terpenes, with ridiculous flavor.”

While extracting from fresh, undried material is popular these days, the folks at Blue River prefer a slightly different method. Using fresh material can sometimes result in a slight back note to the flavor of a dab that Veruza describes as “wet and tinny... We prefer to cure our flowers for five to six days, but in a cool environment below 60°F to preserve those volatile terpenes. That allows moisture to escape from the plant material while ensuring minimum terpene loss and degradation.”

Terpene isolation is another process that has evolved to improve the yield and quality of the recovered terps. Traditionally, terpenes are isolated during the purging process, as the heat used to eliminate the solvent will also remove them. All of the gases removed are collected in a cold trap—a chamber brought to lower temperatures to force the gases to recondense as a liquid. This liquid is then winterized (chilled in a liquid solvent so that the heavier components settle and separate from the lighter ones), resulting in a capture of the precious terpenes.

Yields can vary greatly depending on the starting material and the temperatures reached in the extraction process. Blue River Extracts uses a newer and modified process to increase returns in what it believes is a higher-grade product. Using just nitrogen, alcohol and a vacuum oven, its process puts everything under a vacuum to lower the boiling point of all of the components. Next, Blue River introduces steam to pull out the terpenes, which are then cold-trapped and recovered separately. Cannabis terpenes can be very expensive to extract due to their low yields: Isolating 8 milliliters of terpenes from a pound of cannabis flowers is an average yield with good material.

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The Future of Dabs and the Industry

What do these isolation methods mean? First off, isolating THC-A is a precursor of bigger things to come. In general, the cannabis community isn't running to dispensaries to purchase isolated THC-A, which counts as more of a novelty item at present. But this is common when such a new and different product emerges, since it can take time to understand and realize the possibilities. To date, a handful of people have created a sort of "terp kit" containing a jar of THC-A and several jars of full-strain-profile terpenes. This lets you create flavors with the same base material and gives you the ability to have dozens of strain flavors at your fingertips—you simply need to add some THC-A crystalline to provide that extra kick.

Distillates are great for making extracts for vape cartridges, but they don't retain the full flavor of the cannabis due to the process involved in creating them, and therefore terpenes need to be reintroduced. Quite often, food-grade terps are added to vape-pen cartridges, much like the juice in e-cigarette pens—but the health effects are still unknown, and most cannabis purists are against this kind of adulteration.

A great deal of concentrates' potential



This Juicy Fruit live resin is high in terpenes and resembles apple sauce with its thick and chunky consistency.

The THC-A extracted from Mexican "brick weed," once isolated, is the same as the THC-A extracted from the best cannabis in the world.

lies in the commercialization and industrialization of cannabis as a whole. Cannabis that may not be fit for consumption (because it was harvested too early, was overly dried or burned, or contains seeded buds or old or bad-quality flowers and trim, etc.) can now be broken down into its basic parts and utilized in reconstructing acceptable products. The THC-A extracted from Mexican "brick weed," once isolated, is the same as the THC-A extracted from the best cannabis in the world. This allows cultivators to focus less on growing quality meds—a process that can be costly—and focus on quantity and THC-A production instead. Large fields of lower-grade cannabis can now find a market as well. For better or worse, this model is exactly what industrialization and commercialization does to ensure the best returns on investment. The market has proven that it will sustain mass-produced, inexpensive commercial extracts as well as hand-crafted, organically grown and responsibly cultivated small-batch boutique concentrates. This is why it's enormously important that we understand these aspects of the extraction process and take an active part in deciding what we deem acceptable for the future of cannabis concentrates. ✨

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OUR PICKS FOR GEAR OF THE YEAR

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Research shows that psilocybin and other psychedelic compounds can treat depression, addiction, anxiety and more.

Transformational Tripping

Western culture has entered a new era of wellness, with a little psychoactive help.

By Mary Jane Gibson

"Life lived in the absence of the psychedelic experience that primordial shamanism is based on is life trivialized, life denied, life enslaved to the ego."

—Terence McKenna

Earlier this year, author Ayelet Waldman's *A Really Good Day* hit bookstores across America (*HT* Aug. '17). Waldman's remarkable memoir of her experiences microdosing with LSD was well-received, but it didn't cause a perceptible stir. Seemingly, the story of a well-to-do, highly educated professional and middle-aged mom choosing to treat her persistent mood disorders with lysergic acid diethylamide wasn't shocking enough to attract the attention of the

pearl-clutchers who are normally all atwitter about how shameful and dangerous drug use is.

Far from the hysterical message of those "This Is Your Brain On Drugs" after-school PSAs of the 1980s, many of today's news stories report on treating depression with psilocybin, the microdosing trend taking over Silicon Valley, and the push to hold clinical trials for MDMA as a treatment for post-traumatic stress disorder. The online journal *Scientific Reports* recently published findings that a single dose of ayahuasca rapidly reduced the symptoms of depression in treatment-resistant patients. Researchers also discovered compounds in the psychedelic Amazonian brew that actually stimulate the birth of new neurons—new brain cells. No wonder Ariel Levy, writing in the *New Yorker*, dubbed ayahuasca "the drug of choice for the age of kale."



For centuries, shamans have used powerful psychedelic plant compounds to gain access to the spirit world.

We live in an era “characterized by wellness cravings, when many Americans are eager for things like mindfulness, detoxification, and organic produce, and we are willing to suffer for our soulfulness,” Levy wrote. New Age lifestyle choices like hot yoga, jade eggs, and a never-ending parade of detoxes and cleanses espoused by slender celebrities like Gwyneth Paltrow are all the rage. No more Atkins Diet beach bodies and *The Secret*-style affirmations—we want enlightenment, not self-help, and we want it now.

Who can blame us? The constant news cycle of never-ending disasters both at home and abroad is intolerable. Social media has sucked the soul from a generation suffering from “tech neck”—a hunch (and wrinkles) developed from constantly looking down at a smartphone. Desperate for a reset button, people are seeking out greater meaning and healing through ancient plant-medicine wisdom. Others just want to enjoy life to the fullest through a change in perspective—read about the Amsterdam chefs cooking with psychedelic ingredients on page 62.

Those in search of a path to enlightenment should avoid self-styled neo-shamans in hipster lofts and seek out a practiced guide to assist in what can often be a difficult undertaking. Veteran journalist Mark Franchetti has worked as a foreign correspondent in war zones; writing for the *Times of London*, he deemed his experiment with ayahuasca

“by far the hardest thing I have experienced.” However, Franchetti added, “It was also the most profound.”

Ayahuasca, LSD and MDMA have received the lion’s share of media attention, but the list of therapeutic psychedelics is long. Most of them have been classified by the US government as Schedule I, meaning they’re designated as having no accepted medical use and a high potential for abuse. This includes ibogaine, a potent African entheogen with a long history of medicinal and ceremonial use, which has been proven to help treat opioid addiction. An exception to the Schedule I list is ketamine, which was developed as an anaesthetic and mostly used as an animal tranquilizer. Ketamine has shown positive results in treating depression and PTSD; it is currently classified as Schedule III.

In Seattle, psychedelic guide Sebastian DeRosia avoids the draconian drug laws entirely with a process that uses kambo, the venom from the giant monkey frog (*Phyllomedusa bicolor*) native to the northwest Amazon rainforest. Kambo is legal throughout the world and is used to treat chronic pain, depression, headaches and more. DeRosia offers a kambo cleansing treatment at his cannabis-friendly bed-and-breakfast, the Winston House, where he provides guests with a “consciousness-expanding space.” People have started to seek out alternative therapies, DeRosia says, “because they no

longer trust the medical establishment.”

If you’d like to learn more about psychedelic-assisted therapy, start with the non-profit Multidisciplinary Association for Psychedelic Studies (MAPS). Since 1986, MAPS has been researching and educating people on the “medical, legal, and cultural contexts for people to benefit from the careful uses of psychedelics and marijuana.” The organization has been instrumental in the fight to get medical researchers legal access to MDMA to study it as a treatment for post-traumatic stress disorder. MAPS also operates the Zendo Project, which employs a network of volunteers trained in psychedelic harm reduction to assist people at festivals and events.

Natalie Ginsberg, policy and advocacy director for MAPS, says that she hears stories every day of people taking psychedelics outside of clinical research, and finding healing on their own from PTSD and other conditions: “Though our research is intended to maximize the safety and beneficial outcomes of psychedelic use, we really recognize that people use psychedelics in many other contexts—they have used it in other cultures for thousands of years, and experience great benefits.”

For those taking psychedelics outside a medical context, Ginsberg warns that illegally procured substances can have a high risk of being adulterated. “The MDMA we are using in [MAPS] research is often different than what’s found on the street. We are a proponent of reducing harms as much as possible. That involves testing the drugs, and making sure you’re taking the substances in a safe context, where you feel safe, both physically and psychologically.”

That’s also why the Zendo Project is in place at many events for festival-goers who have taken psychedelics and are having a difficult experience, says Ginsberg: “It’s there to help them through that difficult experience, and make it a more meaningful one.”

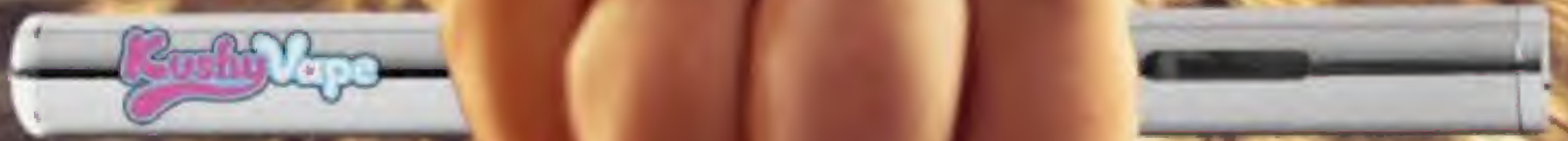
You can apply to volunteer for the Zendo Project, and learn more about how to help expand psychedelic peer counseling services and transform challenging psychedelic experiences into valuable learning opportunities at zendoproject.org.

Many of us are in search of that sense of “Be Here Now” that psychedelics can provide. At the end of her memoir of microdosing, Ayelet Waldman tells a story of being surrounded by her husband and four children, laughing in the rain while playing a game. She writes, “That day when I got out of my own head, stepped into the circle, and embraced the moment, in the rain—that was a really good day.”

For more information on the Multidisciplinary Association for Psychedelic Studies, visit maps.org.

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Anthony Joseph and Noah Tucker use psychoactive ingredients in their haute cuisine.

An Elevated Feast

Entheogen-infused cuisine takes fine dining to new heights.

Peculiar pairings often work. Think of a peanut-butter, bacon and banana sandwich. Or melon and prosciutto. And, especially since the legalization of marijuana in eight US states, just about anything—mac-and-cheese, beef jerky, Philly cheesesteak—with weed. In the case of Michelin-star chefs Noah Tucker and Tony Joseph, it's pork cheeks and Hollandia truffles (yes, 'shrooms) in barbecue sauce.

Tucker and Joseph—from the US and the UK, respectively—now live in Amsterdam, where psychedelics like magic mushrooms are largely legal and readily available, making fine dining with Mary Jane alone

passé. The duo has spent the last three years developing *High Cuisine*, a cookbook featuring the use of psychoactive ingredients like Syrian rue, kanna and magic-mushroom truffles, in addition to cannabis. They've also filmed a Web series by the same name. The project is aimed at chefs, foodies and psychonauts inclined to pursue an upscale high from the comfort of their own kitchens.

Tucker and Joseph co-own Staring at Jacob, a restaurant in Amsterdam's De Baarsjes neighborhood that offers American-style brunch and cocktails. The spot is a big hit with the Dutch. The cooking duo has the breezy familiarity of longtime friends who finish each other's sentences, and yet they're also an odd pairing. Tucker is talkative,



Diners enjoy the cozy ambience of Tucker and Joseph's restaurant Staring at Jacob.

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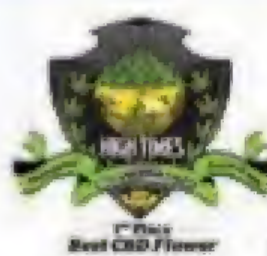
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outgoing, an avid weed smoker from New York who worked for Daniel Boulud. And then there's Joseph: reserved, thoughtful, from East London; he worked for Éric Chavot and Marco Pierre White, and he loves a stiff drink.

The duo met nine years ago in Amsterdam. While the city has a long history as a hub of global trade and enjoys a reputation for tolerance when it comes to soft drugs, it still lacks in the culinary department. So the two chefs opened a restaurant to help fill that gap—and then, in 2014, a five-star hotel commissioned them to create a high-end meal with weed for 25 guests.

Tucker, no stranger to psychedelics and to smoking and cooking with cannabis since his teens, believed they could take it up a notch. He wanted a challenge, and remembering his days of lacing White Castle burgers with 'shrooms, he didn't have far to look. Since sclerotia are legal in the Netherlands, he decided to build the menu from there.

Joseph—who doesn't do any drugs, period—was intrigued by the prospect of cooking with them. He explains, “Psychoactive ingredients? That was something I'd never seen before. I wanted to know how I could finesse them to make dishes palatable and accessible.”

After months of testing dishes on a small group of friends, the chefs created an eight-course psychoactive meal using Syrian

“We're prone to using substances, whether it's coffee, nicotine, downing an espresso, smoking a joint or even stuffing our faces full of food. It's like our brain is on protest against controlled environments.”

rue, magic mushrooms, kanna, and various combinations of THC and CBD. Tucker says that learning how to microdose diners over multiple courses while achieving a consistent dosage and gourmet taste took plenty of practice, since every bite potentially involved a change in brain chemistry. “The irony is, you're trying to control something that isn't actually controllable,” he says.

The dinners generated increasing interest, so the chefs decided to offer their recipes in a cookbook to reach a wider audience where it counts—in the privacy of one's own home, where psychedelics are most comfortably consumed.

“Most people cook a few times a week at home, so why not cook and dose yourself? That's the beauty of it,” says Tucker, who sees psychedelic cuisine as a lifestyle choice that is gaining increasing acceptance.

Their Web series is a documentary-style travel-and-cooking show aimed at raising awareness about psychoactive plants by visiting the countries where they grow, like Brazil, Mexico and Indonesia. *High Cuisine* hopes

to highlight the destructive practice of over-harvesting, which is the case with peyote and ayahuasca (in some San Francisco circles, using ayahuasca is now akin to having a cup of coffee). That's one reason *High Cuisine's* recipes feature Syrian rue, which contains the same chemical compounds as the ayahuasca vine, yet costs only a few cents from online suppliers.

With *High Cuisine*, Tucker and Joseph are seeking to get people intelligently high while furthering the conversation about why and how people choose to do it. “We're prone to using substances, whether it's coffee, nicotine, downing an espresso, smoking a joint or even stuffing our faces full of food,” Tucker notes. “It's like our brain is on protest against controlled environments.” He explains that the psychoactive compounds featured in the cookbook have been around for thousands of years and are valued for their medicinal use. “They're organic, natural, not government-controlled and actually good for you,” he says. And they also satisfy the very human need to expand our consciousness. *Dara Colwell*



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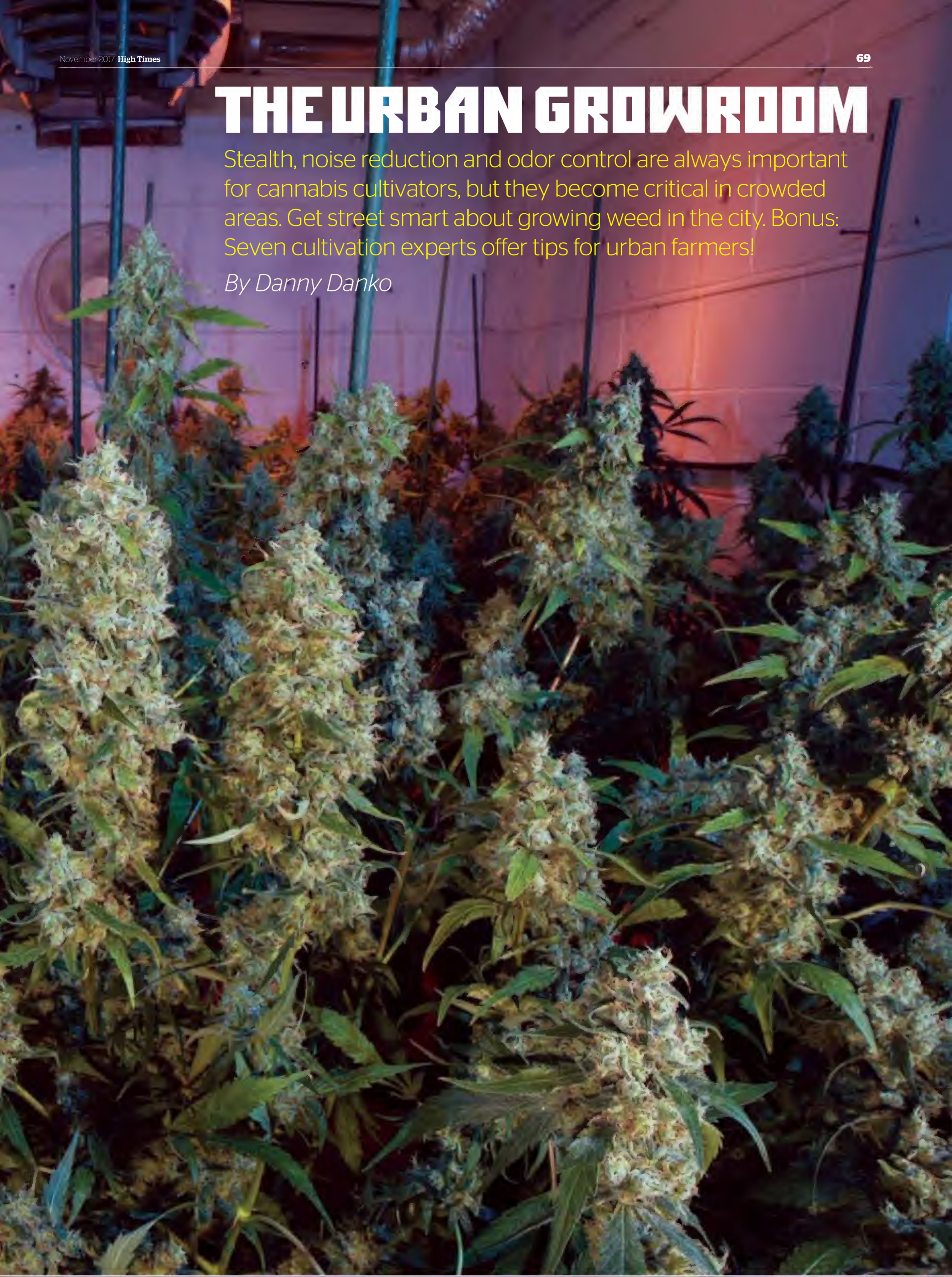




THE URBAN GROWROOM

Stealth, noise reduction and odor control are always important for cannabis cultivators, but they become critical in crowded areas. Get street smart about growing weed in the city. Bonus: Seven cultivation experts offer tips for urban farmers!

By Danny Danko





Lighting must be sized appropriately to available space.



This grow tent features sophisticated monitoring equipment.

CITY LIGHTS

Marijuana cultivation can prove difficult under the best of circumstances, but add in the unique challenges of growing in an urban environment and the stakes rise substantially. For apartment dwellers living in close proximity to nosy neighbors, growing pot at home requires a very particular set of skills. Issues such as odor control, noise suppression and flood-proofing are important for all pot farmers, but for those operating in cramped quarters, they become absolutely vital.

The first decision you need to make is whether growing is right for you in your current situation. Keep in mind that the strong smell of freshly harvested cannabis can permeate an entire city block if uncontained. Safety and security require vigilance, so the place you choose to grow can't be a party palace or crash pad.

Shady behavior becomes amplified in confined spaces, so you have to maintain the appearance of normalcy at all times. You certainly should never grow in a place where marijuana is being sold and people are coming in and out with any frequency. You may laugh at the notion, but I've encountered this behavior on multiple occasions in my travels. Your home must look like any other home in your vicinity or you risk attracting scrutiny, or far worse.

Virtually any space can be converted into a growroom, and with proper cloning skills, you can be quite productive.

CLOSET, BEDROOM, TENT OR GROWBOX?

You have four basic options when it comes to growing in an apartment or small house: You can convert a closet or spare bedroom into your grow space, or you can purchase a growbox or tent. The first two options will require extensive work in order to ensure the proper amount of airflow, and they're also tougher to move or take apart in case of an emergency. Growboxes provide a stealthy turnkey option, but their cost can be too high, and heat buildup can become an issue in some environments.

This leaves the grow tent as the best option in many cases. They're affordable, easily assembled and disassembled, and many come in kits that include lighting, intake and exhaust fans with odor filters, growing mediums and even fertilizers. With many different sizes to choose from, grow tents provide a variety of solutions for small-scale cannabis cultivators.

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GETTING THE EQUIPMENT IN AND OUT

No matter how you choose to grow, you'll need to find a way to get the necessary materials in and out of your space. Hauling grow-light systems, bags of soil mix and hydroponic reservoir tanks into a studio apartment in broad daylight is sure to arouse suspicion. So will trying to sneak these materials into your space in the middle of the night.

The answer is to disguise your equipment as normal household materials. A refrigerator box or other large appliance container can work wonders for concealing any large apparatus. A prominently placed aquarium in your home can help dispel questions about certain provisions and noises as well.

STEALTH BOMBING

The most essential element to urban growing is odor control. The telltale scent of marijuana can't be allowed to permeate your limited space or drift outside of it. All spent air must be actively pumped through activated-charcoal filtration rated for the amount of space in which you grow.

Pumping air out will create negative pressure that pulls fresh air into your room from your intake fans and even from cracks beneath doors. If your growroom is entirely sealed, you'll need to supplement it with carbon dioxide from a tank or generator with a meter and regulator.

NOISE SUPPRESSION

There are several ways you can reduce the sound generated by grow equipment. Electronic ballasts that have a tendency to hum loudly should be mounted on rubber pads or hung from straps. Mufflers can be purchased or built and attached to exhaust fans and filters to stifle their noises. Install air and water pumps atop foam or rubber strips to reduce their sonic output. It's nice to have the television on or music playing, but you should avoid having loud noises emanating from your home in the middle of the night.

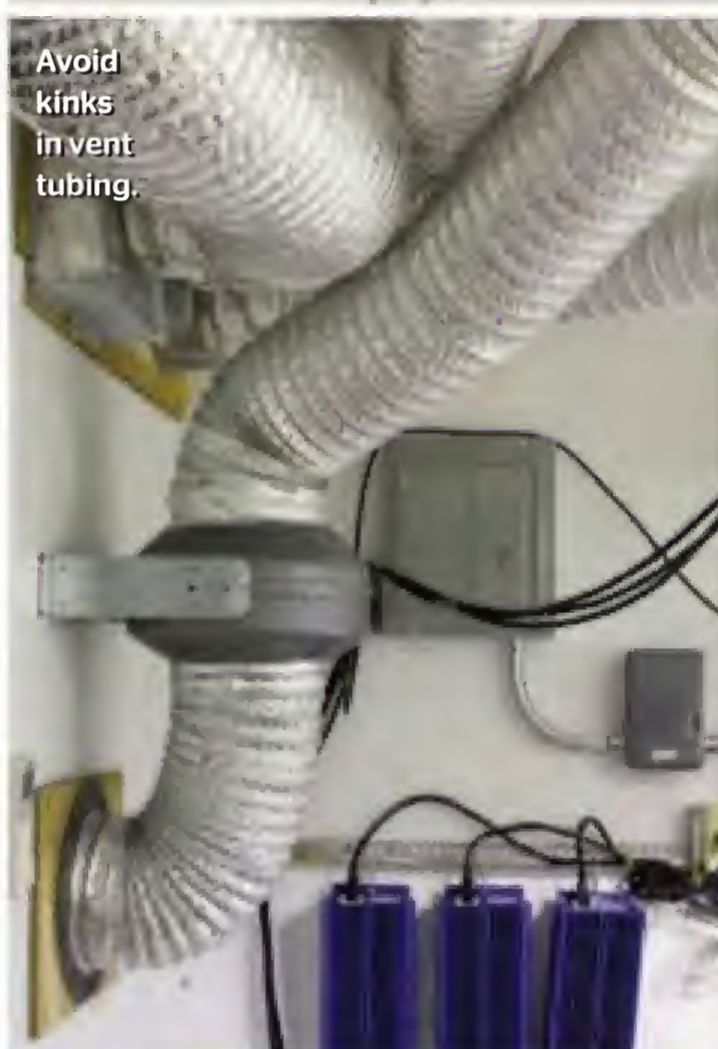
FLOOD-PROOFING

Aside from odor and noise, no other environmental factor can narc you out as quickly as a water leak. No matter where you decide to grow, you should create a space that can withstand a possible flood. Whether you hand-water your plants, use an automated-drip system or grow in deep-water buckets, there is always a chance of the nutrient solution getting on the floor or worse. Place a waterproof tarp underneath your grow and seal it up so that any potential deluge is contained.

This is even more important for hydroponic gardeners, because large amounts of liquid flow back and forth between the trays and reservoirs, and any leaks or breaks in the tubing can spell catastrophe, causing dozens of gallons to pour through your floor to the neighbors below.



Charcoal filtration is a must.



Avoid kinks in vent tubing.



Mother plants insure a steady supply of clones.

OVERCOMING ODORS

Apartment growers who want to realistically control the odors associated with growing cannabis should utilize air scrubbers similar to the ACSI Force Air 2000 or the Aeroclean 2000 "Econo" negative air-cleaning machine.

Large-scale growers with odor issues should investigate the use of an industrial-scale air-pollution scrubber, which can mitigate almost any air contamination, including cannabis odors. There's a plethora of designs available; some simply filter and clean the air using nothing but water. If an oil refinery can clean its air to acceptable EPA standards utilizing this type of equipment, surely a cannabis-cultivation facility can do so as well. Google "air scrubber" and you'll see that there are many options available to suit any requirement.

—K from Trichome Technologies, author of *Marijuana Horticulture Fundamentals*, Instagram @trichometechnologies

ENVIRONMENTAL CONTROL

Virtually any space can be converted into a growroom, and with proper cloning skills, you can be quite productive. A huge key to a successful apartment grow is controlling your environment. Temperature and humidity must be monitored and regulated. All outgoing air must be cleaned with carbon scrubbers. MzJill and I started TGA Genetics in an 8' x 10' extra room that went undetected for four years.

—Subcool, breeder of TGA Genetics, Instagram @theweednerd420

AIR CONDITIONING

Exhaust growroom air into carbon filters in a separate room and keep the window open (if possible) to allow the air to ease out quietly. Keep your fans and ballasts from vibrating and humming. Use tarps on the floor in case of leaks. Also, split-system air conditioning is ideal for urban grows.

—JJNYC, breeder of Top Dawg Seeds, Instagram @topdawgseeds

DEALING WITH LIMITED SPACE

Vertical systems, especially hydroponics, allow for higher yields with less cropping time in the same-sized linear footprint. Don't think flat—grow in all three dimensions for more production in limited spaces. Higher plant densities also mean less veg time for more crops of bud per year.

Equipment like fans and dehumidifiers can rattle ceilings, walls and floors—possibly annoying others or those in your own household. Using rubber straps or bungee cords in eyehooks to suspend equipment will greatly dampen noise and vibrations. Also, sealed growrooms don't tell everyone you're

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Tarps can contain flooding to avoid detection.



Light must not leak out from your closed space.

cultivating cannabis because they don't require noisy or obvious exhaust and intake fan ducts to the outdoors. While this is a more spendy option, the AC, CO₂ gear and humidity controls will eliminate the need for such obtrusive openings, while giving you better and more consistent cannabis crops.

Finally, you should look to conserve valuable power consumption and space. You'll simply be wasting limited resources if you use an entire room and high-intensity discharge (HID) lighting to veg young cannabis plants that don't require all that space or light intensity in their growing environment. Stage your crop throughout the room to maximize efficiency for lower power bills and healthier plants with fewer chances of problems.

—Happy Seeds Company,
happyseedscompany.com, Instagram @happyseedscompany

PREVENT FLOODING AND LIGHT LEAKS

You want to make sure to trough or bed-line the area with tarps as a safeguard for catching leaks and avoiding water damage. This is especially important if you're growing on an upper level. Also, by placing a combination fan/carbon filter as an exhaust at the ceiling of your grow tent and opening the smaller bottom ports, you'll create a negative pressure that will filter odors and circulate the air.

Other factors to consider: Use rubber pads or mats under anything that vibrates; it helps to muffle the noise. Consider LED lighting for its low heat output and energy use. And always keep an eye out for light leaks; otherwise, people might think that Jesus is your roommate.

—Eric, MassCannabis Consulting Inc.,
Instagram @masscannabis

THE RIGHT STUFF

The air in your growroom should exchange every five to eight minutes. With this in mind, the first step in building a silent growroom is buying a fan that draws the exact amount of air you'll need, instead of trying to reduce the speed of a fan that's too powerful. The more air a fan draws in, the louder it will be and the more work you'll have to do to silence it—but reducing the fan speed with controllers forces the fan to run at suboptimal conditions and will lower its life and performance.

Also, exhaust air exiting a duct at high speed makes a very audible whooshing sound that has given away countless grow ops. You can either purchase or build a muffler for very little money. The muffler decreases the speed of the air and reduces turbulence, and even a DIY setup made with a trash bin, glass wool and chicken wire can make your airflow almost completely inaudible.

Both flexible and rigid metallic ducting can carry vibrations and cause noisy turbulence that will compromise your stealth. Not only is fabric ducting easier to install than either of these more common options, but it lends itself excellently to ventilation situations that require silence. Many stealthy growers also recommend insulated ducting for the last stretch of the duct before the air exits to the outside.

While it may cost a pretty penny, the fiberglass insulation designed to contain heat also absorbs sound excellently. If you do use ducting that isn't made of fabric, be sure to minimize the bends and turns that it makes, which create noisy turbulence.

In order to prevent vibrations that the fan creates from going through the floor, walls or ceilings, it shouldn't directly

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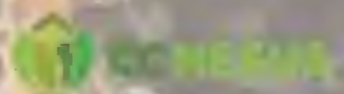
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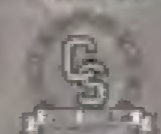
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come into contact with any of these surfaces. Enclosing the fan in a wooden box and suspending it from the ceiling with bungee cords will prevent any vibrations from traveling beyond the enclosure. Seal up any cracks with acoustically rated caulk and you'll be good to go. If you have metal air ducts, suspending them from bungee cords will drastically reduce sound transmission through the ceiling.

Air and water pumps typically rest on the ground and produce noise and vibrations that are capable of penetrating both floors and walls. Placing a high-density foam or rubber surface between them and the floor will attenuate the vibrations, making them as quiet as possible. If you've already invested in acoustical duct wrap or some other soundproofing material, cut out a few squares and place the pumps on them. Just make sure that whatever you use, it's made of a flame-retardant material.

Putting noisy air pumps on foam padding will block vibrations from going through the floor, but they'll still emit sound into the surrounding air—and a lot of it. It may seem counterintuitive, but air pumps make *more* noise the less resistance they work against. Placing more airstones in a series will make your pump work much more quietly, in addition to providing more distributed

oxygenation to your reservoir; it just takes some simple plumbing.

If the above solutions aren't enough because you absolutely need silence, then the entire room requires soundproofing. Certain architectural techniques and materials can be incorporated into the construction of a house or the walls of a room, but tearing up walls and flooring isn't an option for people that pay rent. Installing rubber underlayments, which go beneath the linoleum or wood floor surface, doesn't entail as much work or expertise as ripping up walls, and they may be the first option for someone who wants to make a permanent alteration to the room.

If you can't make permanent alterations, you can hang up vinyl curtains (such as those used in garages and loading bays) for relatively cheap. Pyramid-panel acoustic foam hung on the walls will cut down on high-pitch frequencies, but blocking low and medium tones requires heavy materials like rubber. Don't waste your time with egg cartons—they're highly flammable and don't block as much sound as you think. Seal up all cracks with acoustically rated caulk and make sure that everything is completely fire-safe and that all of the materials are nonflammable!
—Sirius J., *High Times* cultivation reporter,
[facebook.com/John.Smythell](https://www.facebook.com/John.Smythell)

STEALTH AND SAFETY ARE KEY

You must ensure that your growing setup is safe and clean. All wiring must be done properly, with safeguards in place and never exceeding your electrical capacity. Check out how we wire our boxes at 14 to 18 seconds into this video at bcnorthernlights.com/company-culture.

Stealth is the other paramount concern. Because you have others close to your crop and with possible access to your apartment, it's important to ensure proper ventilation (without having to cut holes in your walls); odor reduction via negative air pressure that pulls exhausted air through odor-scrubbing activated-carbon filters; plus lockable doors and wheels so you can roll it all out to a friend's house at a moment's notice. (PS: BC Northern Lights growboxes address all of these concerns!) Also, CO₂ injection can be a great way to maximize your yields in small spaces and will also serve as a natural pest deterrent. (PSS: You're not going to believe this, but BC Northern Lights offers an automated CO₂-injection system with its growing appliances!)

Last but not least, don't be greedy; share your bounty with your neighbors. You'll be far more appreciated than bringing an ambrosia salad to your next block party.

—Tarren from BC Northern Lights, Instagram @bcnorthernlights 🌿

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Huge lines formed before doors even opened.



Vendors showed off their finest bud.

Midwest Marijuana Madness

Speed and fire are nothing new at Michigan's Auto City Speedway, which regularly holds racing and monster-truck events—but no one expected just how quickly the venue would light up when High Times rolled in to celebrate the 2017 Midwest Cannabis Cup.

Story by Emily Cegielski, photos by Jesse Faatz



A stellar musical lineup drew massive crowds.



Even the weed got into the Cannabis Cup spirit!



The FlavRx booth peddled free samples of edible gummies.

With legalization and marijuana-law reform sweeping the nation, it's easy to forget the threats still posed by the opposition, working secretly in the shadows to keep up prison quotas and please the anti-pot lobbyists. Sure, certain prohibitionists' voices are louder than others (cough, cough: Jeff Sessions), but as High Times prepared for its fourth year hosting a Medical Cannabis Cup in Clio, Michigan, there was very little doubt that the event would go smoothly.

Of course, that hasn't always been the case. Our first foray into the Michigan marijuana scene actually took place back in 2011 in Detroit. Police invaded the event, and while no one was arrested, their presence



The Puffco crew showed off their award for Best Vaporizer.



put a damper on the entire affair. Attendees were "bummed," according to one web article published at the time, but the entire situation lit a fire at High Times. An iconic photo of our then-events director, Mary McEvoy, telling off Detroit's "finest" was hung on the walls of our office, reminding everyone that the fight was far from over.

It wasn't until 2014, three years later, that we returned to Michigan. The town of Clio and the Auto City Speedway opened their arms to us, providing High Times with the welcoming environment we needed to host a Medical Cannabis Cup. And after four years and five events, 2017 was, by far, the best Midwest Cup yet!

Dank. Dope. Lit. Sick. Awesome. Super-Fucking-Cool. Choose whatever term you prefer, because they all appropriately describe the event. Me, I'm going with "fire"—because it's quite literally the perfect word.



And a lot of booths were handing out free pre-rolls.

Both days of the 2017 Midwest Cannabis Cup were fire.

Fire is exciting. It can be used to cleanse, to destroy, to restore, to rejuvenate. The heat of a flame can elicit the deepest of feelings, trigger acute anticipation, spark a revolution. It can also light a joint. And as hundreds of people lined up at the front gate on Saturday, June 24, for day one of the Cup, it was easy to see the fire already spreading. Ideas and lighters intermingled with initiatives and torches.

The buzz in the air was not unwarranted. There was more to see and do than ever before. Hundreds of vendors hawked their finest wares, most offering samples, huge discounts, giveaways or all three. Free dabs, free edibles and free pre-rolled joints were being handed out left and right. At one point, wads of cash (i.e., free money, dough, dolla-dolla bills, y'all) were shot out of a T-shirt cannon from the main stage.

Colors Couture and Inked Magazine fielded a traveling fashion showcase featuring celebrity tattoo artists and offering attendees a chance to be inked onsite. For those too afraid of commitment, there was face and body painting in the VIP Lounge, as well as the extremely popular Black Light Visuals experience, open to any general-admission ticketholder.

I personally participated in the latter event and left with a super-cool marbled full-arm tat-

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At the awards show, the Cannabis Cups took center stage.



50 Cent put on a super dank set.

too that washed off in the shower—but I have no idea how they did it. I dipped my arm into different buckets, told a man what colors I wanted, dipped my arm into some paint, and then held it under a dryer for a considerable amount of time. According to the Black Light Visuals website, they “utilize hydrodynamics to transform skin and apparel into glowing works of art.” Okay... well, whatever. Science, schmience... I’m only one writer, and this is the “art” part of my article—the “learning” part comes next.

Dark, heavy clouds rolled in Saturday afternoon, threatening rain, but the Cup continued undeterred, the delicious aroma of Michigan’s best bud combining with the overcast sky. The atmosphere was insurmountably dank. In the end, the downpour never arrived—thankfully, because the only fully sheltered area was our seminar stage. The program of panels started out with a talk about investing in cannabis companies and another on women in weed. *HT*’s senior cultivation editor, Danny Danko, spoke with DJ Short of Old World Genetics about how to grow Cannabis Cup-winning strains. The last discussion of the day was a panel of veterans discussing life after service. “Burn one with a vet—that’s the best bet!” I heard one man yell, and I don’t think anyone disagreed.

On the main stage, Trick Trick and Atmosphere kicked off the evening’s musical lineup, followed by 50 Cent and Wu-Tang Clan. They were all amazing, but I had myself in a tizzy waiting for Saturday night’s headliner, Nelly, to take the stage. As a product of the early ‘00s, I couldn’t help but wonder: Would he sing only new stuff? Would he at least do “Hot in Herre?” Would he be wearing his iconic Band-Aid? Was I about to be sorely disappointed? The answers: No, duh, no, and absolutely not. Even though he was an hour and 20 minutes late for his set, Nelly turned out to be well worth the wait. He performed all of his *Country Grammar* and *Nellyville* hits with his brother, City Spud, and explained that he had removed the bandage once they were reunited. (City Spud served nine years in prison for armed robbery.) The performance was so blazing that it was hard to imagine Sunday being even better—but, boy, was I wrong.

Day two was all about competition—and the competition was hot!



Everyone turned out to the Main Stage to see our musical guests.



Headliner Nelly turned up the heat.

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A canna-celebrity panel judged each round of the Cannabis Cook-Off.

We kicked Sunday off early with the awards show on the main stage. Cannabis entries for the coveted Cup go through a rigorous judging process (including lab tests) prior to the event, but the awards given for Best Booth, Best Product, Best Glass and Best Vaporizer are voted on by attendees. Comedian Jessimae Peluso, a cast member of MTV's *Girl Code*, was the awards show host. A massive crowd turned out to cheer on the winners, but there was one competition that was still going on.

Imagine *Top Chef* with edibles. Yes, that's right—for the first time in Michigan, we held our latest contest: Magical Butter's Cannabis Cup Cook-Off. After a day and a half of duking it out, the two finalists, Chefs Amy Hang and Josh Ethridge, went head to head on Sunday afternoon, literally turning up the heat and playing with fire. *HT's* Danny

Danko, Captain Kirk of Captain Kirk's Edibles and Michigan musician Laith Al-Saadi of *The Voice* acted as the three canna-celebrity judges for the final round, which drew an incredibly large crowd.

"What a treat to sample the delicious cannabis-infused meals created by these innovative chefs!" Danko said, when asked about judging the cook-off. "We've come a long way since the days of baking up a tray of brownies. It was a tough and tasty competition, but in the end, Chef Amy succeeded by cooking the chosen ingredients into flavorful and potent pot food."

And the day wasn't done yet. Devin the Dude took over the main stage, followed by George Clinton & Parliament Funkadelic, Bone Thugs-N-Harmony and Danny Brown. Talk about a lit lineup.

As evening came and the vendors began to pack up, it was evident that the attendees would be leaving with a fire in their bellies. In fact, no one wanted to leave. It felt

like a once-in-a-lifetime experience that shouldn't have to happen only once. Unfortunately, for most of the country, legal weed is still a distant dream—and even in Michigan, it's still only available for medical patients. Imagine what everyone else is missing.

No police came knocking on our door this year, but who knows what comes next. As long as marijuana remains federally illegal, there's never going to be any certainty about its future. Thankfully, we're still able to hold events like this Midwest Cup, which show the world how much good cannabis can bring. Hopefully, that fire in your belly—that flicker of change you want to make in this world—won't burn out. So strike a match and watch your spark spread. That's the only way to defeat the foes of legalization and see real marijuana-law reform nationwide. ✨

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2nd Place: Motorbreath by Lake Effect in collaboration with OGTurtleJuice
3rd Place: F-Cut OG by Herbal Solutions Inc.

BEST SATIVA FLOWER

1st Place: White Lavender by Lake Effect in collaboration with Kalamazoo Vines
2nd Place: Cannonymous Haze by Cannonymous Labs of Michigan
3rd Place: Orange Zkittlez by T.otally Herbal Care & MiTerpFarmz

BEST HYBRID FLOWER

1st Place: Sunshine #4 by Midnight Roots
2nd Place: Sunshine #4 by Heavy Weight Heads
3rd Place: LSD by Pure Clouds

BEST CBD FLOWER

1st Place: Super Sonic CBD by Radicle Genetics in collaboration with Valerio
2nd Place: Bubble Gum Cure AKA Dead Lights Pheno by Buzz
3rd Place: Scandinavian Moose Lodge by LightSky Farms

BEST NON-SOLVENT HASH

1st Place: Banana Split – Rosin Hash by Pure West Club with Grumpy Bears Farms
2nd Place: GMO Live Rosin by Michigan Made Melts in collaboration with Sk3tchy_Grow3r
3rd Place: NomNom Rosin Hash by Bugatti Extracts powered by ICEExtract Equipment in collaboration with Scapegoat Genetics

BEST INDICA CONCENTRATE

1st Place: Hell's Fire by CoCo Extracts
2nd Place: Motorbreath Live Resin by Herbal Solutions Ypsilanti with Higher Society Extracts
3rd Place: Hammerhead by Maze Floriculture x Moxie Michigan

BEST SATIVA CONCENTRATE

1st Place: Lemon Punch by Maze Floriculture x Moxie Michigan
2nd Place: Dementia by Herbal Solutions Inc, Jurassic Farms Detroit & Loyalty Extracts
3rd Place: Lemon G – Terp Sugar by Midnight Roots

BEST HYBRID CONCENTRATE

1st Place: Limonata by Arborside in collaboration with Critical Concentrates, & Alien Labs & Los Angeles Kush
2nd Place: Grape Crush by Moxie Michigan, MX710 & CCC Farms
3rd Place: Pineapple Chunk THC-A Crystallite by Element Extractions

BEST CBD CONCENTRATE

1st Place: Star Tonic Distillate by LightSky Farms
2nd Place: CoCo's Cannatonic by CoCo Extracts
3rd Place: CRC #7 CBD by Herbal Solutions Inc., Gold Drop Co & Critical Concentrates

BEST VAPORIZER

1st Place: Puffco Plus

BEST EDIBLE

1st Place: Pink Polar Bear Chocolate Chip Cookie Dough by Lake Effect in collaboration with Pink Polar Bear
2nd Place: DC Chronicles Cream of Coconut Cake by DC Chronicles
3rd Place: Chocabis Canna-Meal by Chocabis

BEST CBD EDIBLE

1st Place: Peanut Butter Brownie Medicated Custard with Protein Supplement by Kozmic Gardens in collaboration with Radicle Genetics
2nd Place: Captain Kirk's Upsidedown Pineapple Cake by Captain Kirk's Edibles & Depot Town of Ypsilanti
3rd Place: Cherry Cheesecake Delight by Arborside

BEST MEDICALLY INFUSED PRODUCT

1st Place: Lemon Skunk Rocks by Got Meds
2nd Place: B.I.S. Sticks by Higher Society Extracts
3rd Place: P.O.G. Logs by Herbal Solution Ypsilanti

BEST TOPICAL

1st Place: Michigan Organic Rub by Herbal Solutions Ypsilanti with Michigan Organic Rub & Golden Extracts
2nd Place: CBD Icy Spray by Cannabinoid Creations
3rd Place: Death Star Bath Bomb by LightSky Farms

BEST VAPE PEN CARTRIDGES

1st Place: Gelato Vape Cartridge by 710 King Pen
2nd Place: Death Star Vapor Cartridge by LightSky Farms powered by O2 Vape
3rd Place: Gelato Vape Cartridge by Loyalty Extracts with Gold Drop Co

BEST BOOTH

1st Place: Herbal Solutions
2nd Place: FlavRx
3rd Place: Ript Genetics Moon Walker by @kentargal

BEST GLASS

1st Place: Rosin Tech Products
2nd Place: Ript Genetics Moon Walker by @kentargal

BEST PRODUCT

1st Place: Motörhead Kush by Cali's Finest x Motörhead x Herbal Solutions Ypsilanti
2nd Place: The Original Rosin Tech Filter Bags by Rosin Tech Products
3rd Place: Barewoods by Los Angeles Kush x Bert Baccarat x Firerock OG Barewoods

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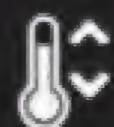
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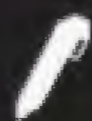
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Drugged: The Military's Pill Problem

The US military is drugging its own soldiers to keep them in the combat zone, with little regard for the consequences. *By Dave Lindorff*

Most Americans probably assume that any soldier hit by a rocket-propelled grenade (RPG)—peppered with metal fragments, brain bruised by the shockwave from the explosion, and suffering multiple ruptured discs in the neck and spine—would be whisked from the battlefield to a hospital somewhere in Europe or the US, treated, and cashiered out of the military with a Purple Heart.

Staff Sgt. Chas Jacquier learned what really happens, though. When an RPG landed next to him in Afghanistan in 2005, spraying him with shrapnel and delivering a concussive blast, he was medevaced to a field hospital and diagnosed with a suspected traumatic brain injury and an injured spine. But when it came to treatment, he was simply loaded up with a medley of pain pills, morphine, “and some other stuff I don’t know about” and sent back into combat just a few days later, expected to resume leading the unit of 25 men under his command.

“They helicoptered me back to my forward base in a sling,” Jacquier recalls. “When we landed, I got out of the sling, grabbed my rifle and climbed into a truck with my men. Fifteen minutes later, we were in a firefight.” He finished his deployment without getting further treatment (other than more drugs) for his injuries, which he said included a fractured neck vertebra. Jacquier is certain that his untreated injuries worsened during this period.

In 2005, the German news magazine *Der Spiegel* wrote about how the Nazis developed a powerful methamphetamine, Pervitin, and distributed it to Wehrmacht soldiers like candy (35 million pills over the course of the war) to allow them to fight fiercely for days without sleeping. The Allies, for their part, were handing out the potent amphetamine Dexedrine in equally liberal amounts to their troops.

Today, the pharmacopeia of war is much vaster, encompassing not just amphetamines, but also stimulants like Ritalin, antipsychotics like Risperdal, and anti-anxiety drugs like Xanax and

Librium, as well as antidepressants like Zoloft and Lexapro. These are the drugs used to “treat” soldiers on the battlefield—antidepressants and anti-anxiety drugs for post-traumatic stress (PTS), opioids for pain, a variety of amphetamines to keep soldiers awake, and Ambien and other sleep aids to allow them to rest occasionally, when they aren’t actually fighting.

“Something is clearly amiss,” says Kathy Platoni, an Army colonel in her 60s who deployed four times to Iraq and Afghanistan as a clinical psychologist on the front lines, treating soldiers for all the stresses and traumas of war. “Most psychologists don’t like to go outside the wire,” she says, using the military’s slang term for leaving the relatively protected confines of the base camp. “But I was outside the wire all the time, which is where the military’s physicians and mental-health professionals need to be.”

Platoni, now a reservist with the Ohio National Guard, is in private practice, where she says she sees her fair share of war veterans, many of them “over-medicated and at risk of suicide, family

breakdown, and unable to function in civilian society.” While she is quick to criticize the overuse of drugs by the Veterans Administration, she also attributes much of the crisis that the VA now faces with returning veterans suffering from war trauma to the widespread use of drugs on the battlefield to keep troops in the fight. “We’re doing a terrible job of handling mental health on the battlefield,” she says.

Malachi Muncy readily agrees. After enlisting in the Army in 2003 at the age of 17, he became a truck driver. In 2004, during his first of two deployments to Iraq, Muncy drove semi-trailers, transporting everything from supplies to tanks from a staging area in Kuwait to bases around Baghdad and Fallujah. On one such run to a base outside Fallujah in August of 2004—which ultimately took 12 hours under a scorching-hot sun due to numerous delays caused by road hazards—Muncy grew frustrated after his convoy was held up overnight for no apparent reason outside the gate to his destination camp. “There had been mortar rounds getting fired at the camp all night—not near us, but we could hear them, so we couldn’t sleep,” he recalls. “Then the next day we were still being held up outside the base. I got fed up and hot, so I took off my Kevlar helmet. My E-5 shouted at me to put it back on, and I said, ‘This is bullshit. We’re here! It’s hot!’ He said he was going to write me up. He called the squad leader, a lieutenant, who told me to get back in the truck. I was angry and swung my helmet against the truck window, smashing it, and he accused me of damaging government property.”

At that point, Muncy says he waved his weapon at the lieutenant, who wrote him up with what’s called an Article 15 (a serious non-judicial violation of the Uniform Code of Military Justice that can end one’s career in the armed forces). “He claimed I had pointed my gun at him with intent to harm,” says Muncy, “though I had no intention of doing that. I was really just throwing a tantrum, waving my gun around.”

Muncy’s gun was taken from him for the drive back to Kuwait. There, he was punished by having to build a gazebo for a soda machine and sent to see a shrink, who put him on Prozac and said, “You’re free to go.” Incredibly, under the circumstances, that included getting his weapon back.

Explains Muncy, “It sounds crazy, but they couldn’t keep truck drivers



Today, the pharmacopeia of war is much vaster, encompassing not just amphetamines, but also stimulants like Ritalin, antipsychotics like Risperdal, and anti-anxiety drugs like Xanax and Librium, as well as antidepressants like Zoloft and Lexapro.

long enough, so they needed me to keep driving, even though I had supposedly threatened my E-6 with a gun!”

Muncy kept driving the Kuwait-to-Iraq route while taking the Prozac, along with Wellbutrin, until he completed his first deployment in 2005.

Paula Caplan, a Harvard University clinical and research psychologist who specializes in treating veterans, says, “There’s a lot of pressure to get soldiers back into the field, especially in today’s all-volunteer military.” But that pressure can do serious harm to the soldiers sent back to the front lines on drugs. Prozac, she says, isn’t something that a truck driver in a war zone should be driving on. She notes that in a hot environment like Iraq, its side effects can become much worse.

When Muncy got back from his first deployment, he stopped using the meds until, diagnosed by the Army as bipolar and suffering from PTSD, he was put on Lamictal right before his second deployment. An anticonvulsant developed for epileptics, Lamictal is also used to treat bipolar disorder, but it includes among its side effects suicidal thoughts and the

development of a serious, possibly life-threatening rash.

In 2014, the organization Iraq Veterans Against the War (IVAW) conducted more than 30 interviews with returning soldiers based in Fort Hood, Texas, which were assembled into a document called “Operation Recovery: The Fort Hood Report.” These soldiers, along with their family members, tell of the struggles they faced during deployments in Iraq and Afghanistan from 2009 through 2014—the period of the US military’s announced drawdowns in troop strength. Nine of the interviewees are soldiers who tell of being deliberately drugged by military doctors and psychiatrists anxious to keep them in combat on the front lines.

One soldier told of being deployed three times in seven years, always to Iraq, where he had the misfortune of being hit by improvised explosive devices (IEDs) *five times*, leaving him with multiple traumatic brain injuries. Constantly angry and afraid that he would “snap,” the soldier says the only treatment he ever received was drugs, including antidepressants and “nightmare pills.” He says, “None of the meds have ever helped. And whenever I said they weren’t helping, they would just up the dosage. They wouldn’t even try other meds. And I never felt anything different after they upped the dosage either.”

Returning soldiers tell of getting cocktails of meds for pain or mental issues. As one soldier who had PTSD and a brain injury from multiple blast concussions explains in the IVAW report, “I only got to see a psychiatrist. I don’t think I ever got to see a counselor. I asked to see one but they really didn’t give me that option. I was usually on five or six different types of medications at any given time. Once I got to see a psychiatrist, he tried different combinations of it. He tried antidepressants, anti-anxiety, sleep medications, headache medications... some kinds of mood stabilizers.”

He adds, “Some of the stronger ones that I remember are Xanax, Klonopin, Ambien, this other sleep medication... I can’t think of it off the top of my head.” Others included Topamax, Abilify and Tramadol—“it’s a pain medication... I can’t think of what it was called, the other sleep medication. It really messed me up, too.”

Another soldier, a tank driver with a traumatic brain injury that went undiagnosed until his discharge, actually had a 200-pound tank-door lid accidentally dropped on his head during training.

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He also suffered from combat stress and some other physical injuries. Asked if he was given multiple medications, the soldier replied, "Oh God. I would say approximately 30 different kinds. I took antipsychotics, antidepressants, anti-anxiety, and I took tranquilizers, muscle relaxants, and they prescribed me one or two painkillers. Generally, just about anything you could think of... At certain points," he adds, "I was on multiple different psychotic medications. I tried probably a full array of different kinds. I'm sure at some point I was taking two different kinds. It's really, really blurry for me to recall a lot of this, because of all the medications. I was given so many medications that I even showed my list of what I was taking to a medical doctor, outside of the military, and they said, 'You shouldn't be taking this many drugs in such short a period of time.' There's so many different cross-levels, medication reactions that could have happened that were really bad."

As Paula Caplan notes: "It's pretty rare, when people in the military are put on psychotropic drugs, that it's just one, and anytime that happens you can have negative effects—not just of the drugs themselves, but of the interactions. So when the military gives these drugs to combat soldiers in the field, they are effectively conducting experiments without the soldiers' consent."

In fact, the Pentagon is known to be conducting experiments with drugs designed to produce "super soldiers." Among these experiments are efforts to find a vaccination against pain, to develop artificial blood that could increase the body's oxygen-holding capacity and to figure out how to prevent inflammation from injuries for up to 30 days. Scientists are also experimenting with drugs that could allow soldiers to go for long periods without sleep—for example, by letting half the brain sleep at a time. But these are all still in the early experimental stage. By contrast, giving traumatized soldiers opioids and other drugs to numb the pain of injuries, as well as amphetamines to keep them awake and allow them to keep fighting, are mainstays of the current military.

Colonel Platoni, who has seen the handling of wounded soldiers at the front up close and personal, attributes the current focus on getting injured soldiers back into combat to two factors: a macho culture in which soldiers don't want to be seen as shirkers or "pussies"—including a laudable sense of unit solidarity

where an injured soldier doesn't want to let his comrades down—and what she calls the military's "numbers game." As Platoni explains, "Especially since the cutbacks and drawdowns during the Obama administration, it can be difficult to impossible to get replacements when a soldier is sent home, so the pressure is on the medical staff to do whatever they can to get the soldier back in the field."

"There's a lot of pressure on field doctors to get soldiers back to their posts. If

The Pentagon is known to be conducting experiments with drugs designed to produce "super soldiers." Among these experiments are efforts to find a vaccination against pain.

you don't get the person in front of you to their unit, the unit can have too few people to be deployed. And with that concern at the fore, everything else can begin to fade. The old doctors' maxim—"Do no harm"—can get lost."

The irony, Platoni notes, is that in sending damaged soldiers back into battle while on medication, the field doctor is increasing the chances that someone else could die.

While the military's "numbers game" is certainly nothing new, the problem is much worse in today's all-volunteer services, where, absent a draft, the number of soldiers is much lower, leading to longer and often multiple deployments. There is also an enhanced focus on inculcating in troops a powerful loyalty to one's immediate team.

Jacquier, now out of the Army and trying to deal with the PTS and physical injuries he suffered in his two deployments, says of the doctors in the field: "They basically enabled us to make our decision on whether or not we wanted to stay or go forward—and at that point, I was a senior enlisted guy in charge of 25 soldiers. I didn't want to leave my soldiers behind, and so even though I was struggling with what was going on, having a hard time with it, I made a decision to stay. They didn't even really seriously check me out there—there was no serious evaluation done all the way until I got back home. It was basically just: 'Here's these medications.' I was getting shots

in my lower back and in my buttocks to be able to deal with pain constantly, and having to pop pills and everything in order to mitigate the pain that I was feeling the entire time.

"I look at it now," Jacquier adds, "and think about the mental state that I was in underneath the amount of medication that I was having to take, and the risks that I was putting myself and my soldiers under by being in that state. I justified it to myself, [thinking] that even on my worst day, I'm still better than half these guys—talking myself up in my mind to be able to justify that. But I look at it now, and if something had gone wrong—if I had lost a soldier after that point—what kind of mental questioning would I have gone back through with myself, wondering, 'Did this happen because I made a poor decision based off these drugs?' or 'Did I not react as well as I would have based on being slowed down from these injuries?'—and just having to live like that."

Efforts by *High Times* to learn whether the Pentagon has any policies in place regarding what drugs a soldier can be given while on active duty in a war zone hit a wall. Clearly, if the Pentagon *doesn't* have a drug-use policy, it should. According to Robert Friedman, a professor of clinical psychology and director of the psychopharmacology clinic at Weill Cornell Medical College, prescriptions for antipsychotic drugs alone for active-duty troops between 2005 and 2011 rose by 1,083 percent—and this was during a time that troop levels in the combat zone were falling.

Dr. Charles Ruby, a psychologist and retired lieutenant colonel in the Air Force who is now director of the International Society for Ethical Psychology and Psychiatry, says: "The military is notorious about having policies for everything, so there probably are policies about which drugs can be used." (He notes that, under pressure after a rash of suicides among soldiers given Seroquel, the Army stopped automatically turning to the powerful antipsychotic drug for PTS cases and now requires a special waiver.) But, Ruby says, "In my experience, commanders in the field would not want any policy—including one on use of drugs—that restricts how they use their men."

For his part, Jacquier is pessimistic about any real change regarding this utilitarian drugging of combat troops. "As a soldier, you're just a serial number—a disposable item," he says. "Nothing is going to change in the field. It's always going to be mission first." ✨



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BY REX WEINER

LEE CHILD

THE HIGH TIMES INTERVIEW

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WE CAUGHT UP WITH CHILD OVER LUNCH IN NEW YORK, WHERE THE 62-YEAR-OLD BRITISH-BORN AUTHOR LIVES. DRESSED IN AN ORDINARY T-SHIRT AND CHINOS, THE TALL, CRISPLY GOOD-LOOKING FORMER TV EXECUTIVE TURNED NOVELIST IS “DOING FINE,” HE SAYS MODESTLY, WITH HIS LATEST BOOK, *MIDNIGHT LINE* [JACK REACHER #22], OUT IN NOVEMBER. PLAIN-SPOKEN AND DOWN-TO-EARTH FOR A MAN WITH AN ANNUAL EIGHT-FIGURE INCOME AND MILLIONS OF FAITHFUL FANS, CHILD CONFESSES THAT “I’M A FAN” OF *HIGH TIMES*, BECAUSE HE JUST HAPPENS TO LOVE SMOKING POT.



How did you feel when a story in London's *Daily Mail* in 2013 first outed you as a pothead?

I was kind of insulted, because the story said I smoked pot five nights a week. What kind of dope addict am I—do I take the weekend off? It can be two or seven times a week, or whatever. It's not a regimented thing for me.

How would you characterize your use of marijuana?

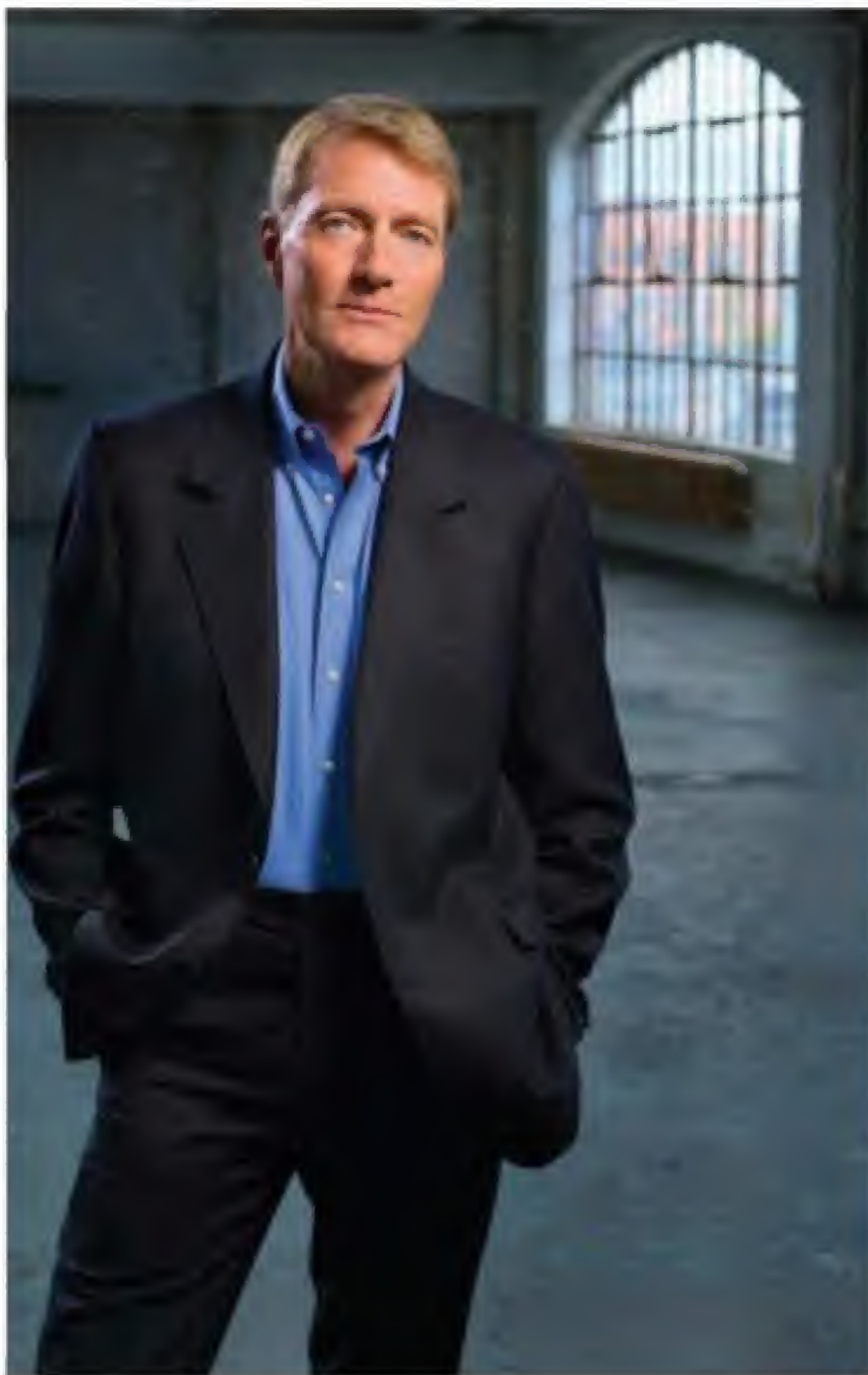
I do nothing that I don't enjoy, and I've just always enjoyed weed. The psychological roots are incredibly interesting. From when I was a tiny kid—and I saw the same thing in my daughter—I know that children love spinning around and around until they get dizzy and fall over. Seems to me there is a basic built-in instinct to alter your consciousness. You experiment with this or that until you find something you really like.

For you, it's weed?

I've tried practically everything else. Weed is the thing I really enjoy. It makes me feel really good.

In your first Jack Reacher novel, *Killing Floor*, your hero says he's thinking of spending the winter "in a hut on a Jamaica beach. Smoke a pound of grass a week... maybe two pounds." Is Reacher, an ex-military policeman, a pothead?

Well, Reacher's problem is that he avoids any kind of commitment or regularity. He has no fixed address, no community, so it would be hard for him to score on a regular basis. But I did that [writing about Reacher's penchant for weed] to reflect the enormous drug problem within the military. Military drug use is pretty big. Because of the Reacher books, I've gotten to know lots of real military policemen. They write to me; they invite me to come visit. I've



"I've tried practically everything else. Weed is the thing I really enjoy. It makes me feel really good."

been to a few of the big MP and CID [Criminal Investigation Division] operations, and anecdotally, drugs are what they do. I guess that's a hangover from Vietnam, where thousands came home addicted to heroin and where weed use was common. I'm trying to make Reacher an exception to that, to make him non-judgmental about drug use. Because I think my whole thing is all about judgment, and I think it's completely ludicrous to be down on weed while accepting of other things.

So what is your position on marijuana—should it be legalized?

I don't want it to be legal... I want it to be compulsory.

When did you first smoke pot?

I remember the exact weekend—April 1969, in Birmingham, England. I was 14. A weekend party at a guy's house—it started Friday night and lasted until Monday morning. Had sex for the first time with two sisters in quick succession. Smoked my first joint. One of the greatest weekends of my life.

In a recent book about you [*Reacher Said Nothing: Lee Child and the Making of Make Me*, by Andy Martin], you're at your writing desk, lighting up a pipe and saying: "This is just a maintenance dose. Just a top-up." What did that mean?

I didn't need to be sky-high. It was just a question of staying in the zone.

What does smoking marijuana do for you, as a writer?

The word I would always come back to is "acuity." Back in those early days, I would smoke while I was listening to music. And I found it really makes a huge, perceptible difference: My hearing—or at least my understanding of the music—was much greater. Now, when I'm writing, over the 20 years I've been doing it, it's gotten weirder and weirder because, the bigger you get as a popular writer, the more other things you have to do—the more on your mind, with all these things buzzing around in your head. I find the weed just increases my focus tremendously: I can eliminate all the irrelevancies, and I'm right there in the zone. I'm there, I'm living it, and all the background noise is suppressed.

Many musicians say that smoking pot helps inspire them, spurs creativity. Does cannabis do that for you as a writer?

All writers secretly want to be musicians. There's a certain similarity between the two art forms: You start somewhere, you travel to a destination, and you finish somewhere. I can totally understand how a jazz musician will spontaneously generate a great improvised phrase. I do that as well. A sentence or a combination of words will pop into my head—which I would not have thought of otherwise, I can guarantee that. And maybe three times out of 10, you'll look at it the next day and say, "What was I thinking?" But seven times out of 10, it's pretty damn good.

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How did you score weed when you were growing up in the UK in the 1960s?

Britain was a little behind the curve compared to the US. London was always the center of things, but even just an hour away, towns were really isolated and provincial. I was never really aware of weed being around until 1969. There was always some older guy who had some, or somebody's big brother—limited quantities, expensive enough that you had to make a choice: Would you smoke or drink? And I'm kind of grateful for that, to be honest. So many other people became mindless boozers. I couldn't afford that. Would you buy a bottle of cider, or were you going to score a joint?

Were your parents afraid you'd become a drinker?

My parents were obsessed with the idea that I might drink and ruin my life. I'd be going out, and they'd say, "Don't drink!" I could look them in the eye and say, "I won't drink," and mean it absolutely truthfully. And they were utterly unaware of any drugs or weed. So were the cops—it was totally under the radar. This was in Birmingham, England's second city—a manufacturing town, sort of like Detroit.

Where did the pot come from?

Birmingham had a lot of immigration, especially from the West Indies. Jamaican people lived in my neighborhood, and they were heavily into weed as part of their culture and religion. I imagine that's where we got ours. Busts were aimed mainly at the Jamaicans, which you have to say was heavily racist and not necessarily a matter of public health.

At what point did you try other drugs?

The warnings were that weed was bad for you, and it would lead to other things. Well, it wasn't bad for you—it was great. Secondly, it did lead to other things, if you wanted, but not if you didn't. Because I was enjoying it, I thought, "Yeah, this is really great, so maybe the other things are really great, too." The more modern stuff like ecstasy, I've never tried—that's not my generation. But a little coke, smoking and sniffing a little heroin... I've never injected heroin.

You liked opiates?

I've never tried pure opium. In a way, I would really like to, and in a way, I wouldn't. I do understand that opiates are incredibly addictive, and I am basically an addictive person, so I wouldn't want to get into something I couldn't get out of.

"I have to say what an amazing thing that is to walk into a store and buy weed legally and walk out with it in your hand. It feels like progress to me."

Especially at this point in your career.

I could probably get away with it now—I do a lot less public stuff than I used to. One of the conundrums of being a writer is that you promote like crazy so eventually you can stop doing that. Other writers, like Stephen King, John Grisham—they don't do much promoting at all, because they don't need to. So we're all desperately trying to work our way to that situation. I'm about there now, so I only do what I feel like doing, and I could probably get away with being unavailable for a few weeks at a time... although the book has got to be written every year.

When you're at your desk, how do you light up?

The irony of it is that, after doing this for 48 years, I'm a hopeless joint-roller. People used to do that for me. I smoke weed neat out of a pipe. Finding the perfect pipe is an ongoing challenge. For a long time, my favorite was made of clear glass. It had a little mesh screen that immediately clogged up with tar, so I ditched the screen and that was great—and then I dropped it and broke it. So now I have a variety of little smoking pipes.

You buy them at a head shop?

No, a convenience store a few blocks away. I'm always on the lookout for a good pipe, but they're hard to find. I don't know how bongs work. I've never used one.

Do you vaporize?

No, I'm a cigarette smoker, so I have no problem with smoke. I smoke a pack a day. Filtered Camel Blue, allegedly mild. I've been smoking since I was 11 in 1965, when everyone smoked.

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How are you supplied with cannabis?

I have a guy here in town. He wears one of those fisherman's vests with numerous pockets. He comes over and unveils bags of this and bags of that—one out of every pocket. I find that extremely civilized. The other thing I do is, I have a house in Wyoming, which is right on the border with Colorado. I turn one way and buy cigarettes at Wyoming prices, which are \$10 a pack cheaper than in New York. That about pays for the Wyoming house. If I turn the other way, I'm in Colorado, so I go down to Fort Collins, and there are seven or eight boutiques there where you can get whatever you want.

What's that like?

I did that for the first time last fall, and I have to say what an amazing thing that is to walk into a store and buy weed legally and walk out with it in your hand. It feels like progress to me.

Do have a special variety that you prefer?

I'm not hugely into that wine-tasting kind of shit where they publish menus of incredibly detailed descriptions. I find that pretentious and silly. I'm fairly agnostic about it—it either works or it doesn't. But I will always buy an eighth of the strongest thing available, Super Skunk or something, and honestly it feels normal to me.

What's your consumption level?

I will buy a couple of half-ounces of my dealer's standard everyday house weed, just to have on hand. Then he has what he calls "exotics." I'll listen to his spiel about "This is a great body high" and "This is a great head high," and I'll say, "Yeah, gimme this, gimme that." I'll usually spend \$800 to a grand, and he leaves. That gives me a couple of ounces, and I'm good to go for a month or so.

How about when traveling?

Depends on where I'm going, and how. It's not a physical addiction—I'm not going to fall apart if I go a week without.

What does your wife think about it?

We enjoy it together, always have. When we had a kid, we both took a break, and she never really came back to it—although the other day, we shared a pipe.

How do you feel about your children smoking pot?

We have one daughter. At some point, we decided to have "the talk." We thought about what to say, because it was stupid to be repressive, to have hundreds of rules. So we said, "There are no rules except 'No unprotected sex,' 'No intravenous drugs' and 'No religious cults.'" She thought about it and said, "Does that mean I can smoke weed?" We said, "Yeah." And

so she's been a solid consumer of weed since her college days. For a time, she would supply me, or I would supply her—whoever had the best connection. She's 37 now.

What are you working on now?

Checking the copy edits on *Midnight Line*. I've got two more books under contract, and then I'm going to retire. I'll quit before I'm 65. Get out a year too early, not a year too late.

Then what will you do?

I've got a couple of musician friends who want me to write songs for them. Maybe that'll be my second career. ✨

Rex Weiner is one of the original editorial contributors to High Times. His articles have appeared in Vanity Fair, The New Yorker and The Paris Review. He's the executive director of the Todos Santos Writers' Workshop and lives in Los Angeles and Baja California Sur.

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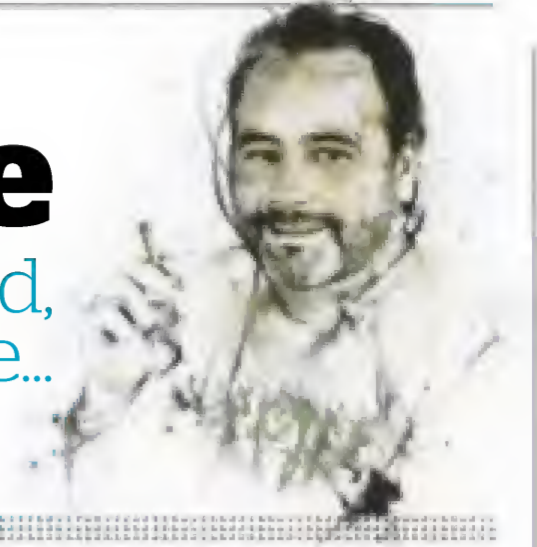
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Expert Grow Advice

Plant yields, pollen storage, mites and mold, outdoor pH and more...



Send your cannabis cultivation questions to [@deardanko](https://twitter.com/deardanko) or deardanko@hightimes.com.

SUBJECT: **Companion Planting**

FROM: **Hor Chata**

🌿 Companion plants seem really cool, but I'm not sure about something: Can I (or do I) plant the mint, garlic, beans or whatever else I choose as my girls' friends in the same pot as the cannabis? Or should I just keep them close together?

Dear HC,
You shouldn't plant your companion plants in the same containers as your cannabis plants: Their roots will end up competing for water and nutrients, so it's not advisable to have them in the same pots. Instead, plant them in separate containers so they can be moved around if needed and won't compete for resources.

Companions like chrysanthemums repel bugs, but other plants, such as beans, act as "canaries in the coal mine" that attract pests first and provide an early-warning system. Because of this, mums can be kept in containers closer to your pot plants than beans, for example. But at the first sign of mites or any other bugs, get rid of the bean plants immediately and begin preventative treatment on your cannabis plants.



Chrysanthemums help to repel pests.

Danko Tip: Cover any rockwool exposed to light in order to avoid unsightly algae that can compete for nutrients with your plants' roots.



Webbing is the sign of a very serious mite infestation.

SUBJECT: **Mold and Mites!**

FROM: **Dorothy Smith**

🌱 I'm in the last week of flowering in my greenhouse, and I have spider mites and mold on my plants... bad. What natural remedies can I use to fix it?

Dear Dorothy,
There are no remedies to fix this infestation of pests and mold. You need to destroy your ruined plants and do some thorough cleaning of your space—as well as some self-reflection concerning your approach—before you attempt to grow in a greenhouse again. The amount of webbing and powdery mildew on your plants

indicates that you've had these problems for a long time and have seemingly done nothing about them.

Pests and molds must be immediately discovered and treated in order to successfully harvest healthy plants. A program of integrated pest management (IPM) using several different modes of defense and attack is the best way to prevent or control infestations. You must incorporate routine spraying with organic pesticides and fungicides as well as the timely release of predatory insects and beneficial nematodes. Only your active participation will result in a happy harvest, so check on your plants early and often and act quickly when they need your help.

SUBJECT: **Storing Pollen**

FROM: **ProcessorOfTruth**

🌱 How long is male pollen viable if it's stored in a cool, dry place out of the sunlight?

Dear POT,

As long as your pollen is kept cool, dry and completely airtight, it should last for at least a couple of months. However, pollen is always most viable in the first week or so of harvesting. If you truly need to store it long-term, be sure to use a desiccant to absorb any excess moisture before placing your light-tight and sealed container in a cool, dark closet or cupboard. (Avoid the freezer or fridge due to high humidity levels.)

Keep in mind that the pollen's effectiveness will inevitably decrease over time, so your best bet is always to use fresh pollen in your breeding experiments. I've heard of breeders keeping pollen stored for more than a year with little degradation, but like I said, it's always best to use it sooner rather than later.

SUBJECT: **Good Reads**

FROM: **DPags**

🌱 I'm a 53-year-old man, and I suffer from PTSD as well as neck and back injuries. How can I start a small, personal-use garden? I want to grow a few plants for myself. I have a valid medical card to buy at legal dispensaries, but the prices are way too high. Can you recommend a good book or a way to begin to learn how to grow these wonderful plants?

Dear DPags,

Sorry to hear about your difficulties. The decision to grow your own is a good one, provided you're aware of the potential risks. It sounds like you're in a state that allows medical marijuana, but you should look into whether you can legally cultivate for yourself and, if so, how many plants you're allowed.

The first thing you should do is to get yourself a good grow book or two and read them cover to cover. I recommend Jorge Cervantes's *The Cannabis Encyclopedia* and *Marijuana Horticulture Fundamentals* by K from Trichome Technologies. Choose and prepare your grow space before introducing any plants, and ensure your ability to control the

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Danko Tip: If you constantly have trouble with your tap water, invest in a reverse-osmosis (RO) machine to remove impurities.

temperature and humidity in your chosen environment.

The most affordable and simple thing you can do is purchase a grow-tent kit, which will include a tent, a lighting system and everything else you need. Decide on the strain you want to grow specific to your medical needs and then order the seeds. When you're sure that you're ready to begin, plant your seeds and get growing. Good luck, and remember to take lots of notes and always keep learning!



Increase the amount of branches for bigger yields.

SUBJECT: **How Much Will One Plant Yield?**

FROM: **Rogue Maple**

🌱 What's a realistic expectation of dried weight per plant?

Dear Rogue,

There are so many factors that determine how much dry flower you can harvest that it's difficult to predict without the specific conditions, but I'll take a stab at it. Obviously, indoor and outdoor yields will also vary, so I'll give you a few scenarios and hopefully answer your question satisfactorily.

Indoors, under 1,000-watt high-pressure sodium (HPS) lighting, at an average of four weeks of vegetative time and with your plant in a 5-gallon bucket, you should harvest approximately a quarter-pound (112 grams) of dry flowers, assuming everything goes as planned and the environmental factors and feedings are dialed in.

Outdoors, the sky is the limit—literally! If you start a seedling indoors during the winter and vegetate the plant until it's ready to go outside into full sun in the spring, you can harvest multiple pounds of dry bud. I've seen outdoor plants that produced 10 to 14 pounds, but keep in mind that they were properly watered and fed, as well as provided with plenty of loose, airy soil for their roots to expand. Some form of trellising is also absolutely necessary in order to keep the heavy, bud-laden branches upright.

One thing I always advise people is not to try to predict their results before they're done. It's the old adage of "counting your chickens before they're hatched." I've witnessed too many

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Thank you, High Times. Congratulations on your 500th issue!



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the anti-drug war

DAREgeneration.com

Danko Tip: Buds grown too close to your lights can burn or exhibit a "bleaching" or whitening of the affected flowers.

people spending money they don't yet have because they're convinced that their future harvest will provide. Then they're disappointed when the bounty doesn't live up to their expectations. Instead, work hard to make improvements with each grow cycle, and you'll see your yields and quality improve.

SUBJECT: **Power Outage**

FROM: **Connie**

🌱 I had the same problem with all four of my beauties, which were in their third week of budding: The power went out in the growroom twice in two days due to snowstorms. The temps were okay, but I'm worried that the disruption of light messed with them. Now they're going into week five, and the buds are small and sparse. Is there anything that can be done?

Dear Connie,

You shouldn't have seen any huge adverse effects from a brief interruption of your electrical supply. It's much worse to interrupt the dark cycle with light than to lose a few hours of light for a day or two. Disruptions during the dark period confuse plants much more and can potentially lead to them turning hermaphroditic or reverting back to their vegetative stage.

If outages continue to be a problem, you should invest in a gas-powered generator. There are many different sizes available, and some are quite affordable. They run on diesel and can produce enough electricity to keep your grow lights burning during power outages. Be sure to get a generator that can handle your electrical needs, and use it in case of a longer-term blackout to avoid stressing out your plants with too much darkness.

SUBJECT: **Getting Started in DWC**

FROM: **Sk8er Punk**

🌱 Hola! I'm a first-time grower, and I've purchased all the things I need for a deep-water culture (DWC) hydroponic system. My question is: How do I begin? I've germinated a few seeds, but how do I plant them into the system? Thank you for your time!

Dear SP,

Once your seeds have germinated, it's important to get them into your system as soon as possible. This allows the young seedlings to get acclimated to their environment and gives them a head start to success. Your DWC system probably came with some grow rocks or other medium to fill the net cups that holds your plants' stalks upright. Fill each cup halfway to the top and then gently place your seedling in vertically, with the taproot facing downward, and carefully fill the rest of the cup, ensuring that the young plant is secure.

At this point, your plants might be too young and their roots not developed enough to reach the nourishing nutrient solution below. You may need to manually pour a mild vegetative nutrient solution through the rocks several times a day in order to keep the all-important taproots from drying out. If you're using rockwool, keep in mind that it absorbs a vast amount of liquid, thus requiring fewer watering cycles. 🌱

GROWING
E_{PO}SED

THE GAME HAS CHANGED

Article by Jeremy Deichen

Beautiful buds ready for harvest

Growing Exposed, a new video series produced by Jeremy Deichen, has been coined "the MTV Cribs of the marijuana industry" for its exclusive look into the once underground world of North America's gardens. Aside from revealing secrets of industry leaders, David Robinson, author of *The Growers' Handbook*, lends his expertise to a segment called *Teachings of the Garden Sage*. You can check out gardens, like the ones that make British Columbia's Kootenay region the Mecca of B.C. bud, on the latest episodes at growingexposed.com.

When Bryan Johnston began growing cannabis, it was the early '90s. He was using 1000 watt bulbs hung from the ceiling commonly referred to as "Donkey Dick" lights. During this period, British Columbia was becoming infamous for the highest quality bud on the planet and people were calling the province's crops "Beaster". A lot has changed in the 25 years since — including his setup and the base plant food he uses, thanks to Green Planet Nutrients.

An environmentally conscious guy, Bryan says he remembers, back in the day running those 1000 kilowatt bare bulbs. Today, his indoor garden uses a smaller wattage but yields dramatically more per watt than ever before.

**"Everything has changed.
The game has changed,"**

he says. "I'm running doubled-ended P.L. lighting with four Spectrum King 600-watt LED lights and doing a massive cross spectrum of light, running four 315-watt P.L. ceramic metal halides. So I'm totaling just under 4,700 watts and yielding on average, two pounds or more for every 1,000 watts of light."

The most recent change to Bryan's garden wasn't in setup though, but to a new base plant food. Manufactured by Green Planet Nutrients, Dual Fuel is a highly concentrated, two-part formula that provides all the energy plants need without the need for calcium or magnesium additives. It's known for an easy application process which leaves less room for error.

"I've tried different brands but I've been using Green Planet's Hydro Fuel and got fantastic results, so when I went to my local grow shop and got some samples of Dual Fuel about two years ago, it wasn't a stretch to give it a try," Bryan says. "But on some level, any type of switch is a leap of faith as a grower. People who consume my product are used to a level of quality and I can't afford to give them anything less than the best."



Drying buds on the drying rack

Growing Lemon Haze since 2011, Bryan says this strain takes a little longer to flower than normal but the flavour and sativa experience is well worth it. He finds it easy to grow and the resulting product very consistent in quality. With the switch to Dual Fuel, Bryan says he noticed changes to his plants almost right away.

"The switch was really easy and the first noticeable difference was that my plants became way greener than before and they stayed lush green into the later stages of flower. It's also cleaner and I don't have salt residue or buildup. Plus I'm getting better and faster yields, so I'm saving about a week overall on my crop. I've done the math on what it costs to run other brands and not only am I saving money but I'm having better results."

With Dual Fuel, Bryan uses only three additives: Green Planet's Massive Bloom Formulation, Finisher, and Terpinator. He says when he's tested plants grown with the additives versus ones without, he's noticed way more cannabinoids.


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Hot Products

What's new for cannabis cultivators and connoisseurs

1 Let It Rock

Prices vary
growstone.com

The medium in which you choose to grow helps determine the outcome and output of your garden. The new GS-1 Hydroponic Substrate from GrowStone is an Earth-friendly and extremely porous aggregate that absorbs and stores water while allowing plenty of capacity for the oxygen necessary to your roots. The rocks are quick-draining and made from 100% recycled glass instead of non-renewable mined obsidian.

2 Quiet Storm

Prices vary
hurricanehydroponics.com

The earliest period of plant growth sets the stage for future harvests. Feed your seedlings and clones with Storm Cell from Hurricane Hydroponics to get a head start on the crucial vegetative stage, when pot plants build their foundation. This liquid solution provides the essential nutritional requirements for the robust development of new plant growth and a healthy root system.

3 Natural Bug Killer


Prices vary
purelifeveganix.com

Growers seeking a veganic solution for pests and mildew should look no further than the Vegatrix FTB Insect Suffocant. This concentrated all-purpose foliar spray (complete with terpenes!) was developed by *High Times* alum and multiple Cannabis Cup winner Kyle Kushman in order to safely destroy insects or mold. Kushman's unique formula coats and suffocates spider mites and repels powdery mildew (PM) without damaging your plants.

4 Doobage Storage

Starting at \$129
cannador.com

Cannabis quickly deteriorates when it's improperly stored. Connoisseurs and medical patients alike should get a Cannador to ensure that their pot lasts longer, maintaining potency and preserving essential oils thanks to a humidity-bead system or Boveda packs. You can also regulate the humidity level for your flowers from your smartphone using the Bluestream hygrometer and app. These lockable storage units come in a variety of sizes.



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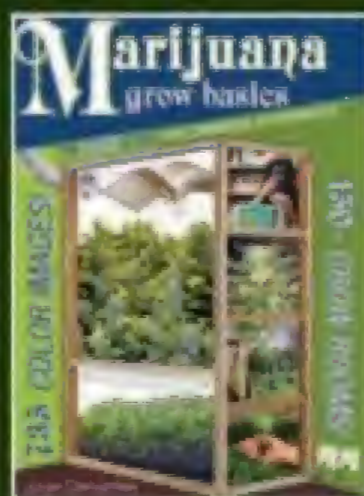
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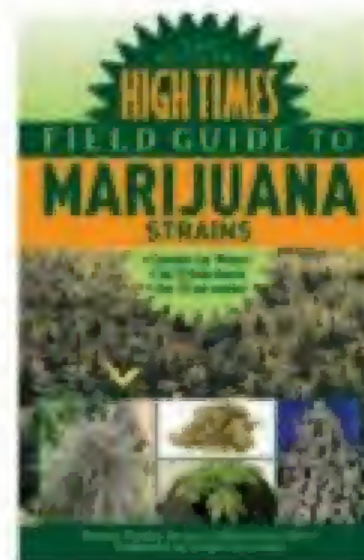


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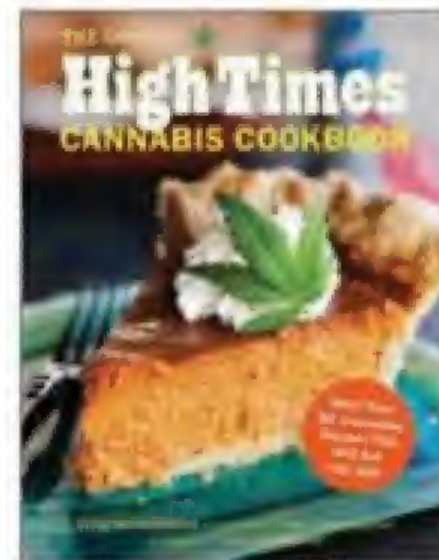


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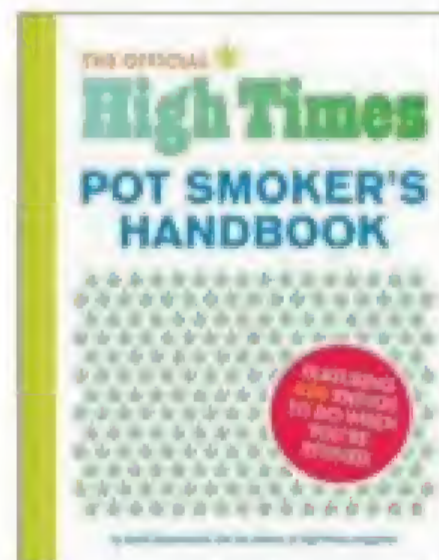
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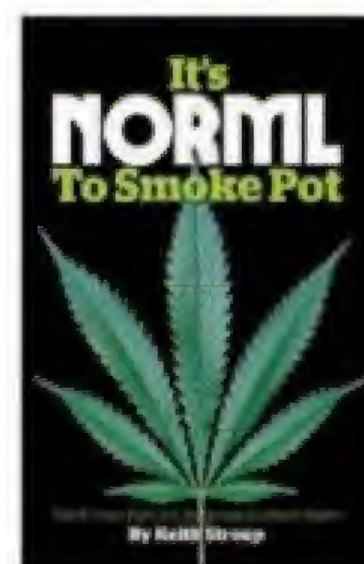
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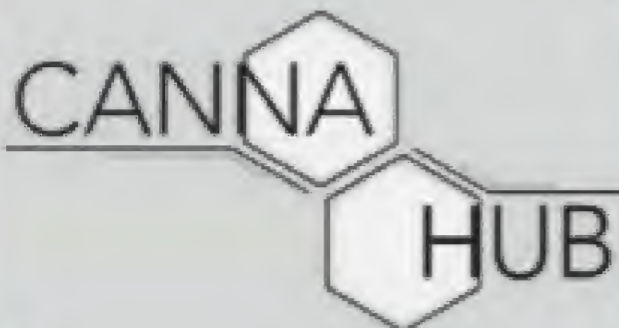
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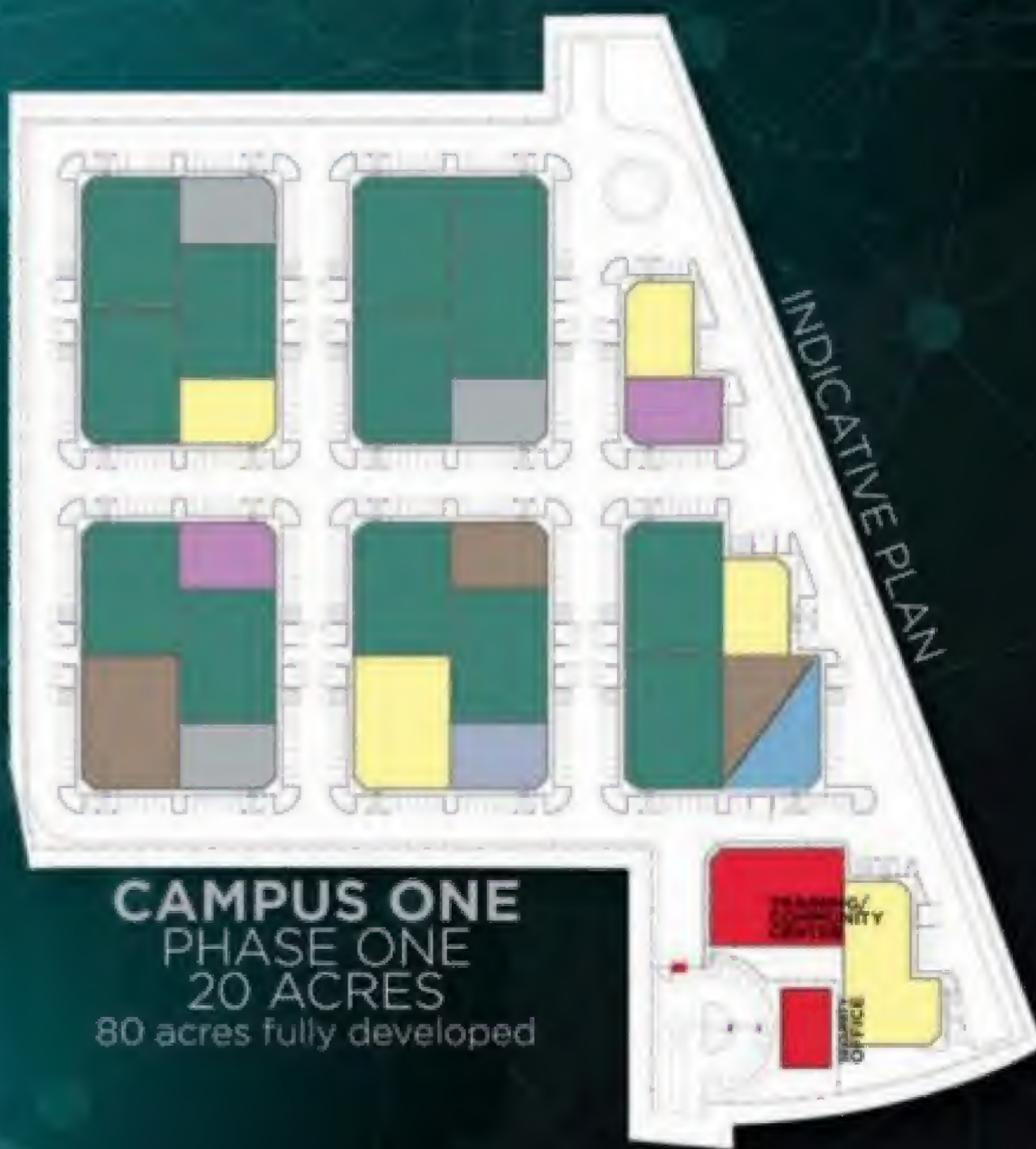
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Edibles



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Toasted Pot Pastries

Make your own medicated version of this popular toaster treat. *By Elise McDonough*

Inspired by the nostalgic flavors of a raspberry Pop Tart, this easy dessert comes together quickly. Don't let yourself get intimidated by the phyllo dough—it makes the resulting treat flaky and buttery, with an elegant grown-up twist on a classic favorite. Created by the weed lovers at ProhbtD for their “Smoking Pot” video recipe series, this recipe involves making a fresh raspberry sauce with a splash of lemon and then spreading it between buttery sheets of thin dough. Using Défoncé White Chocolate to drizzle over the top adds another layer of THC, but if you're not able to source the cannabis-infused white chocolate, you can brush the phyllo with cannabutter instead.

INGREDIENTS

10 phyllo sheets
2 cups fresh raspberries
½ cup sugar
¼ tsp. vanilla extract
1 tsp. lemon juice
4 tbsp. butter
1 tsp. cannabutter
Défoncé White Chocolate (for drizzle)
Sprinkles (optional garnish)

DIRECTIONS

If the phyllo dough is frozen, start by defrosting the sheets according to the package instructions. Once defrosted, place the raspberries in a small pot and then add the sugar and a dash of vanilla extract, followed by a half-teaspoon of butter and a squeeze of lemon. Bring the ingredients to a boil, stirring to blend. Cook for 10 minutes, until reduced and thickened. Turn off the heat and set aside.

Melt the butter together with the cannabutter and put in a small bowl. Place a sheet of phyllo dough on a baking pan and brush the top of the sheet with melted butter. Now place another sheet on top and brush with butter again. Repeat until you have five layers with brushed butter between each phyllo sheet.

Spread the raspberry mixture across the top phyllo sheet, leaving a one-inch border (with no raspberry jam) around the sides. Now add five more phyllo sheets, brushing each one with butter before adding the next layer.

Preheat the oven to 400°F. Put the pan into the oven and bake for 12 to 15 minutes, or until the pot tarts are golden brown. Remove the pan from the oven and let it cool. Now cut the pastry into eight pieces using a knife or pizza cutter. Melt and drizzle the Défoncé White Chocolate across the top of the pot tarts, and add sprinkles or any other garnish of your choice. Serves eight.

A note on dosage: Each bar of Défoncé White Chocolate contains 180 milligrams of THC in 18 pieces with 10 mg each. Melt and drizzle four chocolate pieces for 5 mg per pot tart; eight pieces for 10 mg; 12 pieces for 15 mg; and so forth. Properly store and label any leftover chocolate and/or pot tarts to avoid mishaps. Enjoy! ✨

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Got a question for Dr. Mitch? Email him at 420research@gmail.com.

Do you think flower will eventually go the way of willow bark? It seems like everyone has concentrates now.

Lilly Dahlia

Hi Lilly D.,
Flowers have lost some market share, but they will never disappear. I heard Hendrix on mainstream radio. People still read *The Odyssey*. There will always be room for the classics. Concentrates might stem from prohibition, the same way alcohol prohibition undermined beer production. But as the laws loosen up, don't be surprised to see flowers grow wild!

My colleague doesn't believe that Big Pharma fights legalization. Is this just a conspiracy theory?

Jessie Ventura

Yo Jessie,
Drug companies have donated to anti-legalization campaigns in individual state initiatives. Many also contribute to the Anti-Drug Coalition of America, which in turn funds anti-legalization efforts. This is more than just a conspiracy—it's a movement.

I heard that limonene helped cure breast cancer. What strains have it?

Olive Oyl

Hey Olive,
Two grams per day of limonene had a modest, positive impact on folks with breast cancer, but it was hardly a cure. Any citrus-scented strain (Super Lemon Haze, Lemon Sour Diesel, Tangie) contains 1 to 2 percent of the



terpene—so to get two grams, you'd need at least 100 grams of the relevant buds. Capsules that contain limonene are available for much cheaper than the price you'd pay for almost a quarter-pound of dank nugs per week.

I bought a tincture that says "300 mg of cannabinoids." How do I know how much THC is in there?

Matthew McConifused

Hey Matthew,
Unfortunately, you can't know unless it's printed somewhere else on the bottle. Combining THC and CBD into one measure makes it really hard to predict what a product will do. It's a bit like mixing orange juice and vodka—the proportions really make a difference. ✨

Dr. Mitch Earleywine, PhD, is the author of Understanding Marijuana and The Parents' Guide to Marijuana.



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Isolate CBD: Extractions from the hemp plant have traditionally been derived from singled-out CBD molecules. This method has been overwhelmingly employed in CBD oils found in the marketplace. Through the process of isolation many potentially beneficial compounds are removed, including phytocannabinoids. We believe this was well-intentioned, but misguided. Studies have indicated that CBD itself has a narrow therapeutic window, with beneficial impacts decreasing significantly at a certain dosage.

Whole Plant CBD: Rather than isolating CBD itself, a whole plant extraction contains hundreds of different compounds, like phytocannabinoids, terpenes, and other phyto-nutrients. These compounds work in combination with CBD, creating what is

called the "Entourage Effect." With a large variety of endocannabinoid receptors in the nervous system and the immune system, a full spectrum CBD extract containing a large variety of other beneficial compounds is much more likely to provide the therapeutic efficacy typically associated with the cannabis plant. For these reasons, Hemplucid has utilized the whole plant in our extracts.

Hemplucid Products Provide:

CBD-Rich Products: Our source material is a CBD dominant genetic back-crossed with a hemp varietal. Higher genetic CBD concentrations allow for more pristine initial extraction. Our extract contains CBD, terpenes, and secondary phytocannabinoids that work synergistically, enhancing bioavailability.

Quality Ingredients: Select products and strict standards of quality control. No high-fructose corn syrup, trans-fats, or other artificial additives. Grown to organic standards and pesticide-free.

Agricultural Hemp: The robust terpene and cannabinoid profile of whole-plant cannabis enhances the therapeutic benefits of CBD. Our hemp is selected for maximum potency rather than seed or fiber, utilizing all aerial parts of the plant.

Safe Extraction: Hemplucid utilizes supercritical CO₂, a gentler method of extraction, free of solvents, resulting in higher quality oil. Gentle filtering and distillation leave valuable terpene profiles intact.

Lab Testing: Hemplucid products are tested to insure a consistent cannabinoid profile, and verified as free of mold, bacteria, pesticides, solvent residues, and other contaminants.

No psychoactive effects: Hemplucid keeps within the legal limits of THC providing a powerful product without the psychoactive effects of THC. Independent testing verifies the legal limit of less than 0.3% THC in our extract.



Hemplucid provides quality products consisting of Water Soluble, MCT Oil, Vapes, Soft Gel Caps, Body Butter, Edibles and more.

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Tools of Oppression

Does law enforcement believe that marijuana use justifies murder?

Justin Strekal is the political director of NORML. Visit norml.org.

PHILANDO CASTILE WAS killed by a Minnesota police officer during a traffic stop last year—shot to death in full view of his girlfriend and her 5-year-old daughter, who were also in the car—despite complying with the officer’s instructions.

This summer, we learned that the policeman involved, former officer Jeronimo Yanez, rationalized his actions by claiming that the alleged smell of “burnt marijuana” made him fear for his life. Yanez, who was acquitted of manslaughter in the killing of Castile, told investigators: “I thought I was gonna die, and I thought if he’s—if he has the, the guts and the audacity to smoke marijuana in front of the 5-year-old girl, and risk her lungs and risk her life by giving her secondhand smoke, and the front-seat passenger doing the same thing, then what, what care does he give about me?”

The fact that a law-enforcement officer would make such specious claims, and use lethal force based on them, speaks once again to why we need to reform the country’s marijuana laws and reassess the way that police interact with the communities they are sworn to protect and serve.

Too often, we hear of violence being perpetrated by law-enforcement officers against our fellow citizens on the basis of similarly irrational claims. Philando Castile has sadly become one of the countless men and women—primarily people of color—who have become the victims of this nation’s senseless prohibition of marijuana.

Keith Lamont Scott, a 43-year-old African-American, was shot and killed in Charlotte, North Carolina, in September of 2016 after police officers saw him smoking what they described as a “blunt” in his parked vehicle.

Ramarley Graham, an 18-year-old African-American, was shot and killed in 2012 while flushing marijuana down a toilet after police burst into his family’s New York City apartment.

Trevon Cole, a 21-year-old African-American, was shot in the head and killed in 2010 while attempting to flush marijuana down his toilet after Las Vegas police forced their way into his apartment during a 9 a.m. raid.

These are just a few of the names that have made headlines in recent years. But let’s not forget the hundreds of thousands of individuals—again, disproportionately young people of color—who are arrested and prosecuted for marijuana violations every year.

According to the ACLU, from 2001 to 2010, there were over eight million pot arrests in the United States. Eighty-eight percent of those arrested were charged with violating marijuana-possession laws.

As the ACLU reports: “On average, a black person is 3.73 times more likely to be arrested for marijuana possession than a white person, even though blacks and whites use marijuana at similar rates. Such racial disparities in marijuana possession arrests exist in all regions of

the country, in counties large and small, urban and rural, wealthy and poor, and with large and small black populations. Indeed, in over 96 percent of counties with more than 30,000 people in which at least 2 percent of the residents are black, blacks are arrested at higher rates than whites for marijuana possession.

“The War on Marijuana, like the larger War on Drugs of which it is a part, is a failure. It has needlessly ensnared hundreds of thousands of people in the criminal justice system, has had a staggeringly disproportionate impact on African Americans, and comes at a tremendous human and financial cost.”

Regulating the adult use of marijuana can play a role in reducing some of the Drug War’s most egregious effects on our citizens. For instance, in states that have enacted legalization, we have seen the immediate easing of tensions when it comes to interactions between police and the communities they serve in relation to traffic stops.

The United States currently faces a number of difficult issues, including the long-standing racial tensions held over from the original sin of slavery and its lasting effects, underlying mind-sets and systems of oppression. Legalizing marijuana will not act as a panacea and solve all of those problems. But it will take away yet another tool of the state and law enforcement to oppress the people they are sworn to protect. ✨

FREEDOM FIGHTER

By Kevin Mahmalji, NORML national outreach coordinator

Planting Seeds

Eric Marsch intends to reform Wisconsin’s marijuana laws, one community at a time.

Since co-founding NORML’s southeastern Wisconsin chapter in 2011, Eric Marsch has volunteered countless hours to the fight against pot prohibition. Despite having no political experience, and with no real outreach strategy in place, Eric decided to focus his time on educating his community and raising awareness about the need to reform

local and state marijuana laws. This led Southeastern Wisconsin NORML to organize an annual Marijuana March that attracts more than 1,000 people from across the state.

After getting his feet wet organizing the march and participating in voter-registration drives, Eric decided to shift his focus to passing local decriminalization initiatives (Wisconsin doesn’t allow statewide ballot initiatives).

Following an unsuccessful



attempt to place a decriminalization initiative on the ballot in Milwaukee, Eric and his colleagues decided to take their municipal strategy to the small village of West Milwaukee, which required only 187 signatures to force a ballot initiative. Volunteers with Southeastern Wisconsin NORML successfully collected over 200 signatures, exceeding the threshold to put their initiative to a vote. The village board can either immediately enact it or put it on

the ballot in the next election for the residents of West Milwaukee to decide. If approved, fines for simple possession will be reduced from \$2,000 to only \$5.

“After years of struggling to find direction, it’s very exciting to have a plan for victory in Wisconsin, and it’s encouraging to see all of the enthusiasm and activism we are generating,” Marsch said. “Our goal is to have at least one million Wisconsinites in areas with decriminalization initiatives on the ballot in November 2018.”



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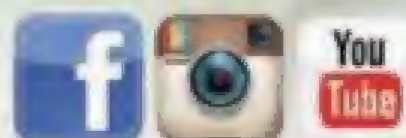
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5 REASONS TO DIVERSIFY YOUR CANNABIS INVESTMENT

Scott Holtby Is a Freelance Writer with a focus on Cannabis Industries

When it comes to investments, everyone wants a diversified portfolio, diversified product line, and diversified business units; the cannabis industry is no exception to the rule. In fact the drive for diversification, in cannabis investment is gaining momentum with time. Here are five reasons why diversification is key for Cannabis Investments.

1. DIVERSIFICATION GETS YOU THROUGH LEANER TIMES

Often the biggest hurdle facing cannabis companies is having enough capital to push through the initial stages of establishing a brand. Cannabis companies have exceeded expectations, raising vast sums of start up capital, but companies need a solid financial foundation to sustain significant growth.

Businesses have overhead and operational costs – even before the first sale. But a well-run company can survive on the revenue from one business area, while driving investment in future products. For example, a grower in Colorado can earn revenues from cultivation while reinvesting in developing a product line of edibles.

2. ATTRACT DIVERSE EMPLOYEES

A diversified company attracts talent with specialized skills who can contribute beyond the scope of a given business unit. This is a key asset for cannabis companies looking to break down barriers, create innovative products, and adapt to changes in both the legal and technological environments of the industry.

3. INVEST OUTSIDE OF CANNABIS

Cannabis companies are spearheading research in health sciences that were previously understudied and underfunded due to legal restrictions. This enthusiasm is certainly influenced by the potential for untapped markets, but most doctors and scientists are studying cannabis out of the genuine desire to give patients access to the best treatment and medicines available.

Working with Alternate Health's team of doctors and scientists, I have seen firsthand that the same passion for improving healthcare applies in their work on cannabis research just as much as in the company's non-cannabis toxicology testing business. Cannabis science is still a novelty today, but researchers are looking towards a future of professionalized and evidence-based marijuana treatments fully integrated into the medical field.

4. ANTICIPATE CHANGES IN THE LEGAL ENVIRONMENT

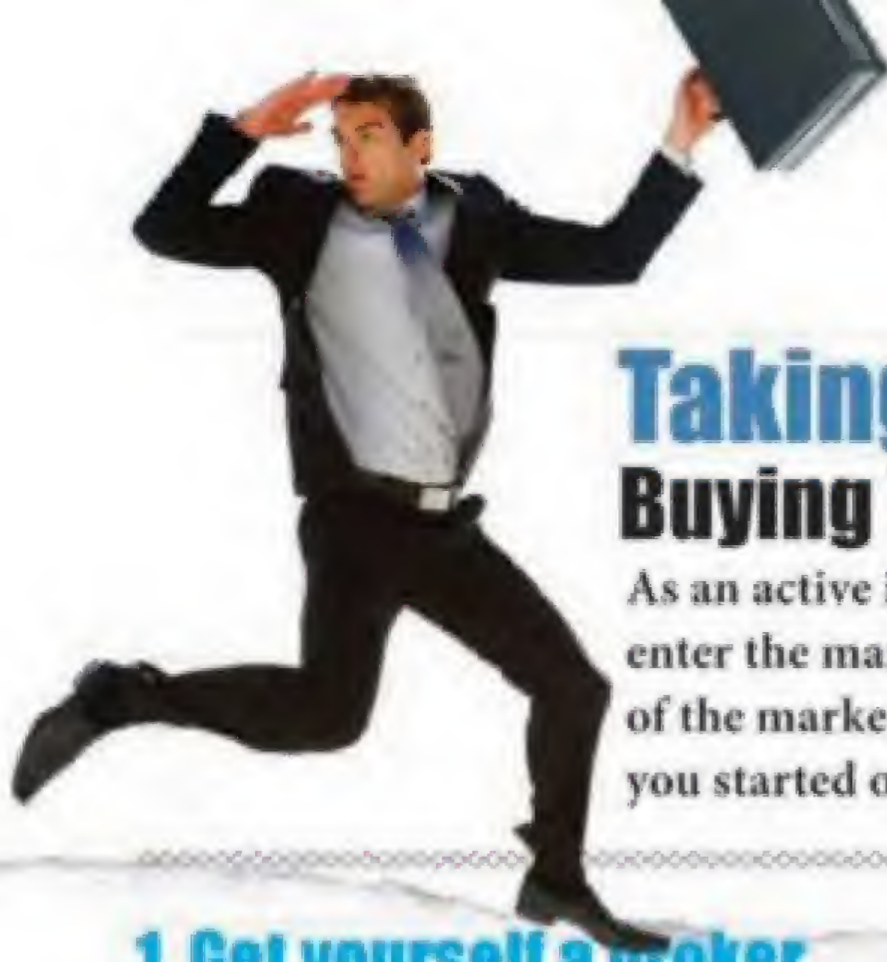
Cannabis is a changing industry, with a number of states currently studying changes to prohibition laws, including both recreational and medical marijuana. Diversified companies have advantages

in the ability to build networks and expertise under current legislation that can be adapted quickly to changes in the market. For example, a medical marijuana company could operate traditional clinics in any state that could be quickly adapted for cannabis treatments following changes in that state's laws.

5. TECHNOLOGY INVESTMENTS ADD VALUE

There's more to the cannabis industry than cultivation and retail. Innovative companies from the U.S. and Canada are creating products serving cannabis as a lifestyle or culture. Even more compelling are the opportunities ahead in the medical marijuana industry, with the potential for incorporating data technology and life science into new treatments.

My work with Alternate Health (OTC:AHGIF)(CSE:AHG) has given me a glimpse of the research cannabis companies are developing, from practice management technology to CBD therapeutics. The results of these research efforts will lay the foundation for the technology that will drive complementary healthcare for the decades to come.



Taking the Plunge: Buying Your First Cannabis Stock

As an active investor, I have heard from a lot more first time investors looking to enter the market. Whether it's about balancing a portfolio, predicting the movements of the market, or any number of financial quirks, here are a few quick tips to help get you started on the right foot.

Nick Swan is an avid investor and advocate for Medical Cannabis Industries

1. Get yourself a broker

Cannabis stocks are just like any other financial security, and before you can invest, you will need to open an account with a brokerage firm. Be aware that not all brokers trade on every exchange platform. If there is a specific company you are interested in, check the exchange it is listed on and make sure it is available at the brokerage.

There are also a number of online brokerage systems that can facilitate these types of trades for you without a broker, but you will still need an account, and the software will act as your "broker" in this scenario. This is a good option if you are looking to keep costs low, but it could take some more research to get started.

2. Learn about OTC markets

If you want to get into buying cannabis securities in particular, take some time to get to know a little about Over The Counter Trading, which is somewhat different from traditional Exchange Trading. Over-the-counter markets have surpassed exchange markets in daily volume of trades as of online trading software becomes more popular and investors become more interested in alternatives. Companies list on Over-the-Counter markets are typically smaller businesses valued at less than \$200 million, which is the trend for most public cannabis companies with securities listed.

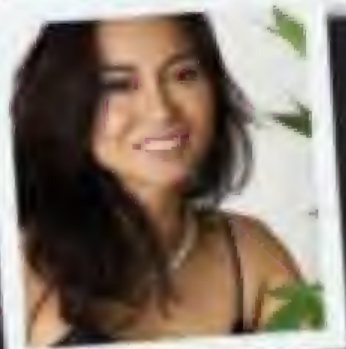
3. Bids and Asks

Whether you are buying or selling a security, limits can be placed on the price. These are called 'bids' and 'asks'. An 'ask' is the price a stock holder is willing to sell for and the bid is what a buyer is willing to spend. Bids and asks can also be placed "at market" in which case the transaction will go through automatically at the current listed market price.

4. Completing an OTC buy

OTC securities are exchanged through a slightly different process than purchasing securities from the NYSE or the NASDAQ. The NYSE and NASDAQ use centralized software systems as an intermediary between the two exchanging parties, processing the trade by connecting buyers and sellers. This single centralized system does not exist for OTC trading. OTC trades are made through market makers using inter-dealer quotation and brokers compete to link buyers to sellers.

Women In Cannabis



Hazel Rivera

After graduating from WU with a double major in Computer Science and Media Information and Techno-Culture, Hazel segued her passion for brand development toward the health and wellness market. Her involvement with cannabis market influencers led to the creation of Herb Angels, a line of CBD enriched nutraceutical products.

►► *Why have you chosen the Medical Cannabis industry?*

The field chose me. In school I found that cannabis helped me to focus on tasks and in some cases excel at them, which is very ironic to a lot of people. After graduating, I researched employment trends and decided to get a degree in Computer Science.

That positioned me as a brand developer and strategist in the cannabis industry. Who would have known that society as a whole would embrace cannabis in 2017. They say

all it takes is a little bit of luck and timing, right?

►► *What is the most convincing argument for the use of cannabis as medicine.*

How about the betterment of one's self? That everyone wants to feel good everyday and that cannabis is a proponent of that desire. I don't really have a scripted argument but I can tell you that the actual things I have witnessed and regarded have been nothing short of incredible.

A young girl we were able to assist in mitigating her seizures, to a gentleman who was able to manage his PTSD with our CB2 capsules, to a cancer hospital that referred patients to us to try to help stimulate hunger, to mitigating the effects of a client's Lyme disease, to arthritis, menstrual cramps, prostate cancer through suppositories, the amount of relief and happiness and enjoyment that I've been able to help administer has changed my life.

►► *What's the process of choosing which products to sell at your establishment?*

With little to no market intelligence it has been a very intensive process from discovery, through design and implementation only to find out that the product did not resonate or was not identified with. It is a very costly and time consuming endeavour however by listening to my clients and observing not only locally but globally, the products that have had the most positive impacts on health and wellness, I've been able to carefully identify and craft some incredible product lines. You must listen to feedback especially in the cannabis market.

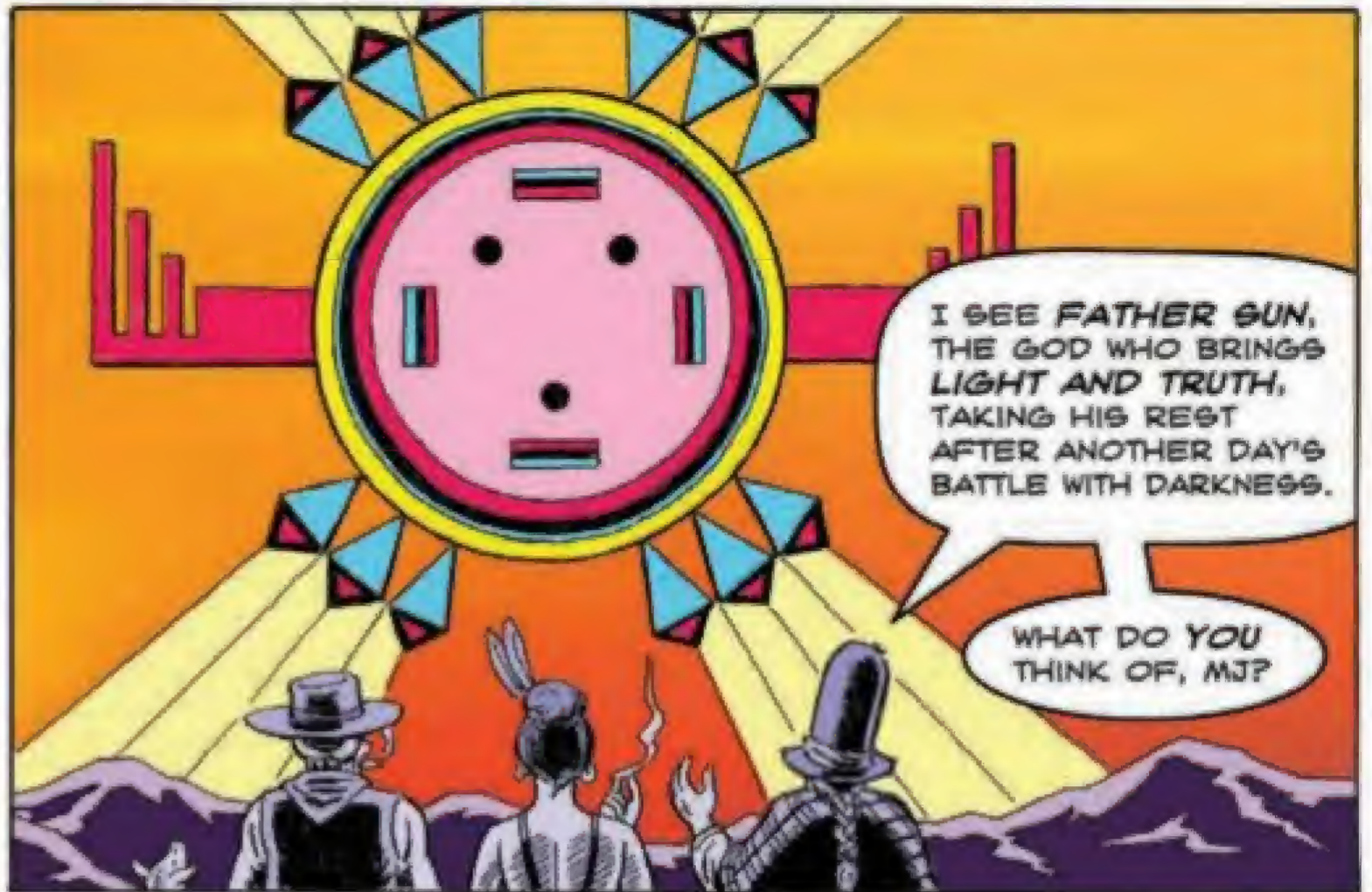
DOPE RIDER

THE CHIEF, MJ, DOPE RIDER AND DILLY LIGHT UP AS THEY WATCH THE SUN GO DOWN.

WHAT DO YOU THINK OF WHEN YOU WATCH THE SUN SET, CHIEF?

ME, I THINK IT'S DINNERTIME.

BY PAUL KIRCHNER



I SEE FATHER SUN, THE GOD WHO BRINGS LIGHT AND TRUTH, TAKING HIS REST AFTER ANOTHER DAY'S BATTLE WITH DARKNESS.

WHAT DO YOU THINK OF, MJ?



TO ME, IT'S A KISS GOODNIGHT FROM THE MOTHER GODDESS WHO SHOWERS US WITH HER BLESSINGS EACH AND EVERY DAY. DOPE RIDER?

CURTAIN CLOSED. THANK YOU AND GOOD NIGHT.

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CLOSE UP OF THE MONTH

GOLDEN GLOB
High Times has always
been an icon in my cannabis life,
thank you for the opportunity to
submit these photos. This is from
Apothecary Extracts out of Colorado
Springs. Thank you! *Tony Collins*
(thcollinsphotography.com)



NUG OF THE MONTH

GODFATHER TRIMMED

 This is Queen Dee, photographer/
Co-Owner for Greentree Express
Delivery Collective/Rip's Genetics. Rip has
encouraged me to send you a few photos
for your viewing pleasure. Happy Summer
from So. Cal. *Queen Dee, Co-Owner/Grower*



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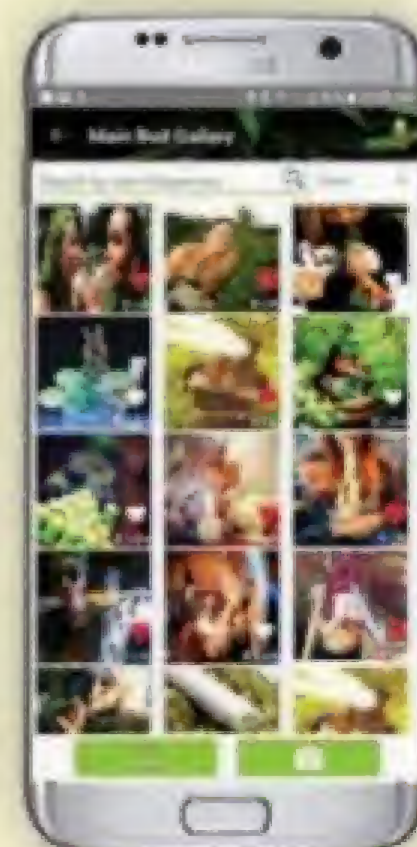
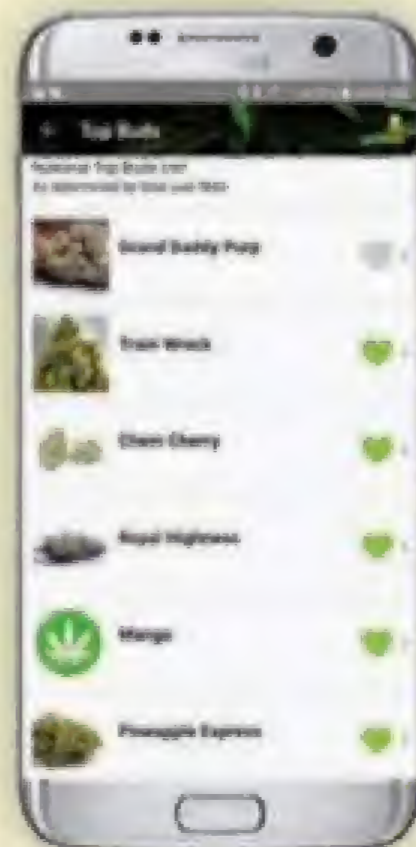
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By Alec & Alison Gray

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► Top 10 Strains of 2017

We reveal the esteemed pot varieties that wowed tokers this year and won awards for flavor and potency. Don't miss our annual list of the best cannabis strains on earth!

► Build Your Own Space Bucket

Micro-growing, or the cultivation of cannabis in tiny spaces, has come a long way. Find out how to construct a Space Bucket, a container about the size of a mini-fridge, capable of producing plenty of pot for personal use.

► Magic Mushrooms in Oaxaca

The indigenous wisdom of magic mushrooms has brought tourism and economic prosperity to the Mexican town of Huautla de Jimenez, along with some serious problems.

► The High Times Interview: Joss Stone

English soul singer Joss Stone opens up to *High Times* about her love of weed, how it influences her music and why she never lets anyone tell her what to do.

MEDICAL MARIJUANA DIRECTORY

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FROM **DANNY DANKO**



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